The Builder.

VOL. LXXXIV.—No. 3148. JUNE 6, 1903.

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The Architecture of Greece and Rome.

SUCH a title as the above to a one-volume octavo book* is a little startling, though followed by a modifying subtitle; so vast is the field of intellectual interest suggested by the words, which one might rather have expected to read on the backs of a series of formidable and exhaustive folios—could even folios exhaust so great a subject. For does not the phrase include the æsthetic parentage of all the architecture of the world? and from this point of view, that of development, one must admit that the Roman architecture, however inferior to the Greek in refinement of design and artistic feeling, is quite as important a factor. As far as its decorative features are concerned, certainly, it is only Greek architecture at second hand, and in somewhat coarsened and corrupted form. The Greek mind was the fount of Classic architecture; but the Roman was the aqueduct conveying its streams into all lands. Had there been no Rome, no great conquering power to carry this root-form of columnar architecture with it over the then known world, it is quite possible that Greek architecture would never have had the effect on the whole subsequent history of the art which it has actually had. Its productions were, comparatively speaking, too few and within too confined an area to have exercised so great an influence; and when Greece fell into political and social decline her architectural remains might have dropped out of recollection, until perhaps modern travel and modern education brought them again into notice and appreciation, had not the great conquering nation which took possession, for some centuries, of the known world, also adopted the Greek idea of column and entablature, and planted it east, west, north, and south, wherever her eagles flew. Hence, when we come to speak of the historic development of architecture, Roman architecture becomes almost of more importance even than Greek. Without the Greek it would never have been; but without the Roman, Greek architecture might have become but a dream and a memory.

It is important to bear this in mind in considering the book before us, the joint production of the late Professor Anderson and of Mr. Spiers, because, in spite of the omnivorous character of its main title, its actual purpose is not to give all that should be known about Greek and Roman architecture, which would require almost a library to itself, but to give a review of their development; and though there may not be very much to be said on the subject that is actually new, it was worth while to have the subject revised from a new point of view, and to have a handbook which includes, as this does, the latest opinions based upon nearly the latest observations. The foundation of the book was laid by Professor Anderson, who in 1896-7 delivered a course of lectures to the Glasgow School of Art on the History and Development of Greek Architecture, a subject to which he had devoted his studies for three years. He added in 1897 three lectures on Roman architecture, which, together with those on Greek architecture, were to have been published as his second book (the first having been the excellent and now well-known book on the Architecture of the Renaissance in Italy). He had not, however, been able to go into the study of Roman architecture so fully as into that of Greek; and he had asked Mr. Spiers, who had been in frequent communication with him on the subjects of his lectures, to read and see through the press the chapters on Greek architecture, so as to leave him more time to devote to those on Roman architecture. Unhappily, soon after this arrangement had been come to, Professor Anderson's studies, to the great loss of the whole architectural world, were cut short by death, and the work was placed in Mr. Spiers's hands to complete, with the entire concurrence of Professor Anderson's widow. That is the brief history of the book, of which the first four chapters, with some passages in others, are Professor Anderson's work; the fifth, sixth, and seventh chapters on Greek architecture, and the whole of those on Etruscan and Roman architecture, are due to Mr. Spiers, than whom no more competent and fitting person could have been found to carry on the work which Professor Anderson had begun.

The late author commences his first lecture by a criticism very much wanted just now, when there are so many clever people maintaining that architecture is nothing but building, by insisting on the importance of "the spiritual element" in architecture. "Building whose end and aim is the fulfilment of material wants remains building, and whatever be the nature of the material wants, differs in no essential from the work of the lower animals. . . . A style of architecture is one of the higher manifestations of nature reaching in through the human spirit." Instead of using the word "spiritual," we should have preferred to say that architecture is an intellectual symbolism; it may rise to spiritual feeling, as it did in the Mediæval cathedral; but when men who build, without rising to spirituality, make use of *antæ* to express and fashion the ends of walls, of mouldings to mark off and emphasise the termination of a column or the boundary of a space—when, in short, they model their buildings in many other ways that might be mentioned, they are making use of a symbolism which is an appeal to the intellect, and a direct addition to mere building. There is no better example of this than the treatment of the *anta* in Doric architecture, with different mouldings from the capital to which it responds, so as to indicate that its function is different; a delicate distinction which is purely intellectual, and can only appeal to an educated race of men.

"It may be that the greatness of the Greeks is not demonstrated most of all in their architecture, but it is by their architecture, using the word in its widest sense, that we may now most readily comprehend their civilisation in all its bearings. An eminent student of Greek language and literature said lately that he would give up the work of one of the greatest of Greek writers for one peep into the

* "The Architecture of Greece and Rome: a Sketch of its Historic Development." By the late W. J. Anderson and R. Phené Spiers, F.S.A. London: B. T. Batsford. 1902.

workshop where Phidias and Ictinus perfected their marvellous designs.

We can take leave to doubt if the sight of the workshop would reveal much that would be worth the knowing; but the perfected work which that workshop turned out, and which yet remains, is it not in itself a document, for those who have eyes to read, far more precious than any single work of Greek literature?"

In speaking of the Mycenæan age in Greece, Professor Anderson suggests that the class of work called Mycenæan need not all have emanated from Mycenæ or its neighbourhood as a centre, and makes the remark (which comes oddly enough at the present moment), that "if we can accept, as having any foundation in fact, the legend of Minos, his maritime power would explain much that is obscure in the history of the development of this type of culture." We presume this portion of the book was printed off before the discoveries which have proved that Minos was anything but a mythical ruler; but we are rather surprised to find no reference to the point in Mr. Spiers's preface, which is dated September of last year. In giving the plan of Tiryns the author remarks with truth on its considerable resemblance to that of a fortified mediæval castle; and indeed the primitive and inconsiderate manner in which rooms and passages are huddled together both here and at Knossos is characteristic of an age when no plans of a dwelling were made, but the whole obviously arranged (if it can be called arrangement) as the work went on. We agree with the author that the portico *in antis* of the *megaron* is the precursor of the portico of the Greek temple, the house or principal apartment of the god, as the *megaron* was the living-room of the man*; but when he observes that the baulks of timber placed against the rubble walls of the early structures were reproduced in the *antæ*, "when they had no longer a constructive purpose to fulfil," he is surely hardly doing justice to the æsthetic element in the Greek mind, which would have demanded an answer to the column if no *parastades* had ever existed; indeed, the *antæ* of the cella in a Doric temple are really only the architectural expression of the wall-projection, and hardly presuppose any origin in timber structure. We must protest too against the assumption, as if it were a proved fact, that the columns of the Heræum at Olympia "were all originally of timber and were gradually replaced by stone." That is one interpretation of Pausanias's mention of the wooden column, but it is only one conjecture out of others that are equally possible and to our thinking more probable. The fact is, people reason from such passages to a great extent as their preconceived theories incline them; those who have settled in their minds that the Doric order had a wooden origin clap their hands over Pausanias's wooden column and say—"Ah! there it is, you see!"; but that does not explain the thick proportions of the stone columns; nor, on the theory that the original wooden columns had been gradually replaced by stone ones, and this was the last remnant of the wooden architecture, is it explained how they came to last thirteen centuries, from the time of the assumed date of the temple till the day Pausanias made his visit and his memoranda. It is surely at least possible that the wooden columns he saw (supposing his note to be correct), were a cheap repair made in an unprosperous period, when they did not care to go to the expense of a couple of new stone columns. We are disposed to agree with the author in dismissing the Beni-Hasan columns from their time-honoured position as the *origines* of the Doric column; the non-projection of the abacus is a very strong point against that. The argument—if the Greeks imitated that form of Egyptian column, why did they not imitate others? is not so strong a one. The Temple of the Winds capital is an obvious imitation of an Egyptian capital; it is late in the day, to be sure, but we do not now know what forerunners it may have had.

The chapter on the Archaic Period in Asia Minor is thoughtful and collects a good many interesting examples of archaic forms of the Ionic capital; but the historic outline is rather vaguely written; we come several times on the expression that such and such facts "seem to have been," but we are given no reason why they seem to have been, and in fact that is a kind of expression generally used when a writer has a theory for which there is no support in actual evidence. But in general the whole chapter is written in a broad and philosophic spirit; we notice especially the remark that it is really of more importance, in understanding an architectural development, to know the object with which the building was planned than the materials of which it was first made. "Temples were built of marble at Athens, and of limestone at Pæstum and Corinth, the only effect upon the design being a greater refinement of detail at Athens: the type is one and the same." This is a point apt to be overlooked in these days, when people are so constantly asserting that material is at the bottom of everything in architectural style.

The author devotes a good deal of space to the archaic forms of the Ionic volute, but we can hardly see the grounds for his conclusion that the further we go back in its history the more do we find evidence of its wooden origin, "the spirals being painted or scratched on to the block which distributed the load." Painted spirals surely say nothing as to the original material, as they might equally have been painted on stone. On the other hand, when we come to carved spirals, it is obvious that these could be more easily carved in stone than in wood, in which latter material the more strongly developed and more fibrous grain of the material is at variance with the free carving of such a form as the spiral, which almost presupposes equally facile execution in every direction; and there are examples of carved Mycenæan stone spirals in evidence of this. Professor Anderson rightly draws attention, however, to the original function of the Ionic capital as one for a portico *in antis*, where there are no angle capitals; a position which it takes in some very early rock-cut façades in Asia Minor. But in its nature the volute is far more of a stone than a wood form, and the illustration of the carved slab from Orchomenos, at the close of this chapter, with its spiral ornaments carved "on a slab of green schist," is itself an example of this.

The impression produced by this portion of the book, in which the early history of Greek architecture is dealt with, is that the author was too much under the domination of previously adopted theories to take a perfectly impartial survey of facts. Of course it must be remembered that the earlier period of Greek architecture, with which he was dealing, is the one in regard to which there are fewer facts, fewer examples, and less positive information to go upon, and therefore more room for the play of theory. It is all interesting reading, thoughtful and suggestive, but a little fanciful, and we are inclined to think that the fancies are not all in the right direction. In his fourth chapter, in which he describes the culmination of Athenian architecture in the great period, he is naturally less troubled with theory, and gives an exceedingly good and well-illustrated summary on the subject, not forgetting the connexion of the art with the political and social conditions of Athens at the time, and with the period of development which had preceded it; the buildings of the Acropolis, as he puts it, "being not so much the works of their particular architects as the matured fruit of a succession of harvests. It was in fact a conservative adherence to the older type, and a traditional respect for previous result, which led them ultimately to such masterpieces as the Parthenon and the Erechtheum, the perfection of which would have been impossible but for the careful and logical progression of the two preceding centuries." Mr. Spiers, who takes up the subject of Greek architecture after this culminating point, is obviously more occupied with giving a summary and illustrations of the known buildings than in entering upon the ground of theory and speculation. Even in regard to the much-disputed question about the Greek stage he contents himself with simply mentioning Dr. Dörpfeld's theory that what had been called the stage—the high Greek stage, was only a background to the orchestra and not a "practicable" stage, without expressing any opinion one way or another. He compresses a great deal of information into the allotted space, and the illustrations are numerous and excellent.

To the portion of the book devoted to Roman architecture we must return in another article.

* It is a rather curious parallel to this, that we have quite recently come to regard the Christian temple in its early form – the basilica, as the development from the main apartment of the Roman house.

CEMENT TESTING.

IN no department of work connected with construction is there greater need for standardisation than in tests of Portland cement. At present two main sources of difficulty stand between the manufacturer and the user, one being the occasional specification of tests that are unnecessary or inconclusive, or both, and the other arising from the fact that different results frequently follow the separate application of presumably identical tests. Considerable interest, therefore, attaches to a paper recently read before the Society of Engineers by Mr. David S. Butler on "Certain Vexatious and Fallacious Cement Tests.' In ordinary building construction it is probably true that the adoption of any well-known brand of Portland cement, without any precaution other than the maker's guarantee, would lead to perfectly satisfactory results; but in important works it is always desirable, as well as necessary, to determine precisely the physical qualities of the material before use.

The trustworthy character of many cements now placed on the market, and the vigilant care exercised by the makers themselves in

testing every batch of cement produced, are most certainly due to the strict demands made in specifications within comparatively recent years. Hence, it is clearly desirable that the stringency of stipulations made by architects and engineers should be in no way relaxed. At the same time there should be a proper understanding as to what tests ought to be prescribed so that needless trouble and expense may be avoided. In the paper to which we refer, the author addresses himself chiefly to two familiar operations—(1) the simple test for fineness by sifting a weighed quantity of cement with a sieve having a certain number of holes per lineal inch, and ascertaining the percentage of residue; and (2) the temperature, or "marmalade pot," test brought forward some years ago by Mr. G. F. Deacon. At first sight it seems to be a foregone conclusion that very little difficulty should arise out of the sieve test, but the fact is that no recognised standard exists for the gauge of the wire used in the construction of sieves. Consequently, while the number of holes per inch can be definitely fixed, it is impossible to obtain uniform results unless the manufacturer and the engineer are each furnished with sieves of identical construction. On the Continent and in the United States the standard has been adopted that the thickness of wire shall be one-half the length of the opening. If engineers in this country could be persuaded to agree on this, or some similar standard, all future trouble would be prevented. As things stand, disputes are very apt to arise. Mr. Butler gives an example which recently came before his notice. In this case, the percentage of residue was in dispute, one sieve showing 3·6 per cent., and the other 6 per cent. As the specification only allowed 5 per cent., the acceptance or rejection of the cement depended entirely upon the decision as to which result ought to be accepted. Under such circumstances an engineer might easily think that the more rigid test should be adopted in the interests of his client; but if so, the manufacturer would suffer injustice and expense. It must further be remembered that the general tendency of unlooked-for expense and risk is to increase market prices, and so in the long run the client has to pay for misunderstandings. The duration of sieving is another point to which the author directs attention, and he shows that the percentage of residue is materially affected by the length of time during which the operation of sieving is continued. No doubt most engineers who understand their business are careful to avoid ambiguity on matters such as these, but the fact remains that there are others who lay the foundation for trouble by lack of precision when drawing specifications.

Much of Mr. Butler's paper is devoted to a demonstration of the erroneous character of the temperature test as propounded by Mr. Deacon. This test is as follows:—"A hand sample of cement, a small vessel of water, a marmalade pot and a thermometer, are left together for a short time to acquire a uniform temperature. The cement is then gauged in the pot as quickly as possible, with just sufficient water to render it plastic, and the thermometer being immediately pressed into it, the initial temperature is recorded. If within fifteen minutes the rise of the thermometer exceeds 2 deg. Fahr., or within sixty minutes 3 deg. Fahr., the cement is further exposed before use." The idea of Mr. Deacon was that this test gave an indication of free lime in the cement, but we think it very probable that he has now ceased to entertain such an opinion. Unfortunately, a good many people still believe in the reliability of the temperature test, and by including it in specifications, cause much unnecessary trouble between themselves, contractors, and makers. In his paper, Mr. Butler gives particulars concerning cements evolving considerable heat when setting and yet passing every known test for soundness, and of other samples showing no rise of temperature, but being at the same time thoroughly unsound and worthless. The fact appears to be that increase of temperature is due to crystallisation during the hardening of the cement, and that temperature is proportionate to rapidity of hardening. Further, it is established that rise of temperature in setting is greater with finely ground than with coarsely ground cements, and, taken in conjunction with the circumstance that the free lime contained within the coarser particles constitutes the most dangerous form of unsoundness, this is an additional indication of the inconclusive nature of the temperature test. From a letter read during the discussion of the paper, we gather that Mr. Deacon chiefly applies the test to determine the period of aëration necessary to bring a cement of good quality into proper condition for use in the works in which he employs it, and that he has never regarded the test as conclusive alone, or as one to be applied for the purpose of determining whether cement shall be rejected on delivery. Unfortunately, other engineers have so employed this test, and in one case cited by Mr. Butler, a corporation engineer rejected several deliveries as unsound purely on account of evolution of heat, or rise of temperature, during setting, involving the contractor in a law-suit and the loss of several thousand pounds. Therefore, it cannot be too widely known that this so-called test for soundness is nothing of the kind.

As our readers are well aware, there are several recognised tests for cement which may be relied upon for the purpose of affording a sufficient indication as to the suitability of the material for all the requirements of constructional work. It is true that even these tests are not wholly satisfactory, chiefly because the manipulation necessarily varies from case to case. Hitherto it has been found impossible to eliminate the personal factor from testing operations, but even with the disadvantages thereby entailed, there need be no real difficulty in determining with approximate accuracy the fineness, time of setting, soundness, and tensile strength of the material. These are the main features upon which information is required, and engineers will be wise in confining themselves to recognised methods of procedure, and, where necessary, in defining the manner in which results are to be interpreted.

COCKERELL'S DIARIES: 1810-17.

MR. S. P. COCKERELL, who edits his father's diaries, makes a kind of apology, in his preface, for publishing these memoranda*; observing that Cockerell's beautiful sketches form what may be called his real diary, and that "the letters and memoranda of a youth of twenty-two, who disliked and had no talent for writing, naturally require a great deal of editing." The discovery of the Ægina marbles and of the Phigaleian marbles, also, is already told in Cockerell's "Temples of Ægina and Bassæ"; and in fact it can hardly be said that the memoranda contain anything that is of particular architectural value. Yet we quite agree with the editor that they were worth publishing. Their interest is of another kind. They give a most lively and dramatic picture of the state of the countries visited, and the manners of the people, in the early years of the last century; and moreover they furnish, in a quite natural and unaffected manner, a good idea of the courage and pluck of the young architectural student and sketcher who underwent so many hardships and surmounted so many dangers and difficulties in the pursuit of his investigations. The diary leaves one with the impression that it was rather a piece of good luck (coupled perhaps with his own bold attitude in the face of danger) that its enterprising author was not murdered, on more than one occasion, in the course of his peregrinations. The ways are made much more smooth for the temple-digger now than they were a hundred years ago.

Constantinople was Cockerell's first goal, and one of the most curious points in the diary is the absence of evidence of any interest on the part of the young architect in the great architectural monument of St. Sophia, which would now be the main end and aim of any architectural visit to Constantinople. He only mentions the great building once in passing, in the remark that "to architecture in the highest sense viz.: elegant construction in stone, the Turks have no pretension. The mosques are always copies of Santa Sophia, with trifling variations, and have no claim to originality"; and that is the only allusion of any kind to Justinian's church. He describes the really ornamental buildings of Turkish architecture as being the kiosks or summer residences:—

"The rooms are all so contrived as to have windows on two sides at least, and sometimes on three, and the windows are so large that the effect is like that of a glass-house. The Turks seem to be the only people who properly appreciate broad sunshine and the pleasure of a fine view. Unfortunately the Turkish, which is something like the Persian style, only appears in the architecture. As to decoration, I was bitterly disappointed to find that now they have no manner peculiar to themselves of ornamenting these fanciful interiors. They are done in the old French crinkum-crankum [? Louis XV.—ED.] style, by rascally renegades, and very badly."

The snappish remark about the "rascally renegades" who had imported Louis Quinze into Turkey is amusing. But what about the buildings all window, "like glass-houses," for a hot climate? It seems difficult to believe that there is not some mistake or exaggeration. In the same chapter there follows an amusing description of a day with an acquaintance whom he characterises as "a real Turkish gentleman," who seems, however, to have bored him fearfully. Among other things he mentions that "I presented my visitor with one of those new phosphoric contrivances, and never was an effendi more delighted. 'If you had given me a casket of jewels,' said he 'I should not have been better pleased.'" The editor suggests that the present thus described was

* "Travels in Southern Europe and the Levant, 1810-1817." The Journal of C. R. Cockerell, R.A. Edited by his Son, S. Pepys Cockerell. London: Longmans, Green, & Co. 1903.

"a tinder-box"; it was probably what were called in those days "brimstone matches"; slips of dried wood dipped at both ends in sulphur, which were to supersede the less inflammable "tinder" of former days. Striking matches, which the words might seem to imply, were not invented till about fifteen years later. Cockerell sums up—"So passed an idle, odious day. I was worn out with trying to do the agreeable through an interpreter, but—I had seen a Turkish gentleman." And he goes on to admit that "there was something very fascinating about him." Instead of being wearied and flurried with business, here was a man "who calmly enjoyed what he had."

The next chapter describes the arrival at Athens, where Cockerell met with some kindred spirits in the shape of Baron Haller (the German archæologist), Byron, and others (though the "noble poet" would have been no kindred spirit had he known that Cockerell was after the same kind of business as Lord Elgin), and made the acquaintance of the young Greek lady, one of three beautiful sisters, celebrated in what Cockerell calls the poet's "much over-rated lyric" on the "Maid of Athens." The verses were probably over-rated then and there; but on the other hand Cockerell does not show any evidence of literary interest or poetical feeling at all in his jottings. The glorious past of Greece, save in respect of architecture, does not seem to have moved his feelings, and he is much more occupied with satirising her inglorious present, as it then appeared. The Greek men in their slavery, he says, have become "utterly contemptible, bigoted, narrow-minded, lying, and treacherous. They have nothing to do but pull their neighbours' character to pieces." Byron implies much the same in the notes to "Childe Harold," but he recognises that political circumstances had pretty well made them what they were. It must be remembered, too, that even in ancient times the Greeks had a bad reputation for untruthfulness:—

"Quicquid Græcia mendax
Audet in historiâ."

There is a characteristic conversation reported in one place between Cockerell and the local authority ("Waiwode"), who wanted to know what he and Lord Elgin came so far and took so much trouble for. "Did it give us a preference in obtaining public situations, or were we paid for it? It was useless to assure him that we considered it part of education to travel, and that Athens was a very ancient place and much revered by us. He only thought the more that our object must be one which we wished to conceal." In the Council of Greek Primates Cockerell saw the French proclamation of the birth of the King of Rome: "The immortal son of Buonaparte is born! Rejoice, ye people, our wishes are accomplished!" to which the Primates gravely objected that "none but God was 'αθάνατος." We suspect, however, that there is an error in Cockerell's transcription, and that the real reading was, "the son of the immortal Buonaparte," which would put a different complexion on it.

Cockerell visited Crete, and appears to have actually penetrated into what was then called and believed to be "The Labyrinth," *i.e.* part of the palace lately excavated by Mr. Evans, then a subterranean winding cave entered by a hole in the ground. They brought a string for a clue, and groped about among intricate passages and halls. "The clearly intentional intricacy and apparently endless number of galleries impressed me with a sense of horror and fascination I cannot describe"; so differently does a thing appear before and after excavation. A curious anecdote is told of how, on his return to Athens at a later date, Cockerell became possessed of a slab of the Parthenon frieze. The Commander of the Castle on the Acropolis had become attached to him, and told him one day that he knew he was very fond of old sculptured stones, and that if he would bring a cart to the base of the Acropolis at a certain hour of the night (for the Greeks had got it into their heads by that time that they did not like the removal of the ancient sculptures), he would give him something. Cockerell kept the appointment; there was a shout above to "look out," and what now forms the right-hand portion of Slab I. of the south frieze in the British Museum was tumbled down the cliff anyhow, not without damage. Of course Cockerell never anticipated receiving it in that fashion; but if Byron had got wind of the incident, there would have been a scathing "P.S." to the "Curse of Minerva!"

As we have said, there is little information in the book that is of special value to architects or archæologists, except what has been given more fully elsewhere. The book is more one for the general reader; which is to say that, in a sense, its interest is wider than that of a professional record. It is a lively and picturesque impression of scenes and native character and habits as then existing, related by a spirited young man who had his eyes about him. Every one will probably find it interesting to read; and it constitutes, too, a testimony, in the mere facts as narrated, to the courage and resource of the young traveller who was destined to achieve such an honoured position in the roll of English architects.

NOTES.

The Fire at Eton.

THE fire at Eton College, with its lamentable result, is an example of the evils of procrastination in regard to guarding against danger from fire. The Master of the house in which the fire occurred admitted that he had condemned the bars to the windows, and resolved that they should be removed "before they began fires again"; as if conflagrations did not often take place quite independently of any lighted fires in the grates. The Headmaster stated that he had some time before written to all the House-masters calling their attention to the necessity of providing against danger from fire, but he does not appear either to have made any suggestions, or asked for any replies to his circular. Surely this is a very slack way of acting in such a matter. The effective course would have been to have had an examination and report made to him by an expert as to what was needed to make the houses safe, and then to have directed that the masters should report to him, by a certain date, what they had done to carry out the requirements. Over and over again we meet with the melancholy fact that nothing seems to warn people about danger from fire short of a fire with fatal results.

A Question of Light and Air.

A SOMEWHAT curious point was recently decided by the Court of Appeal in the case of Quicke *v.* Chapman, though how there could be any doubt upon the matter, and why the parties should have spent their money on litigation, it is difficult to imagine. However, they have had the satisfaction of removing any doubt from one point of law at least. By a building agreement between the Ecclesiastical Commissioners and the defendant, the right was given to him to enter upon a piece of land belonging to them for the purpose of erecting a number of houses upon it. As each house should be erected and completed to the satisfaction of the Commissioners, they agreed to grant a lease of it to the defendant for ninety-nine years. The lease was to be in a specified form, one of the clauses in which provided that the Commissioners should have power to erect on the land adjoining the demised land any buildings whatsoever, whether they should or should not affect or diminish the light enjoyed by the lessee. It was also provided by the agreement that nothing therein contained should be deemed to operate as an actual demise of the land to the defendant, or to create as between him and the Commissioners the relation of tenant and landlord. On one of the plots the defendant erected a house, and the Commissioners granted to him a lease of that house in the specified form. The defendant sold it to the plaintiffs, and transferred the lease of it to them. He afterwards erected on an adjoining plot another house, which, when completed, obstructed the access of light to some of the windows of the plaintiff's house. The absurdity of bringing an action under these circumstances is obvious for two reasons: first—that the defendant had at the most a kind of licence which could not ripen into ownership until he had actually completed the building—in other words, he could not acquire sufficient interest in the adjoining land to enable him to grant a right to light over it until he had himself created an obstruction to the passage of light over it; he was clearly, therefore, not within the terms of the Conveyancing Act of 1881. The second point was that the plaintiff knew that he was buying a house which was on a building estate on which other houses would be erected. People who buy houses or plots under such circumstances cannot expect to have uninterrupted views or air.

Electric Block-Signalling.

THE paper on "Railway Block-Signalling," by Mr. Pigg, which has been published in the "Journal of the Institution of Electrical Engineers," is valuable, as it discusses a system which is admittedly capable of considerable improvement. The object of block telegraph signalling is to prevent more than one train being in the section between two block-signal cabins on the same line at the same time. The apparatus usually consists of outdoor mechanical signals and electrical signalling apparatus, the latter being merely auxiliary to the former. Recently, electric power control of signals and points has been adopted in a few cases, as, for example, at Earl's Court Station, and there is no doubt that much larger use will be made of electric power when the railways begin to electrify their suburban lines to meet the competition of electric trams. The North-Eastern Railway Co. and the Lancashire

and Yorkshire Railway have already begun to do this. For this reason we think that the Westinghouse electro-pneumatic system, although a great improvement on the older systems, is not likely to be widely adopted. In America it has been tried in practice with successful results. The compressed air to work the signals is supplied by a 2-in. main pipe along the line, and there are compressors at distances of every eleven miles. The safety of this system was tested a year ago when all the telegraph wires were broken by a snow storm, and for thirty hours the running of the trains was governed by the automatic block signals. We think, however, that a purely electric system will be the one most widely adopted in the future. In the Bartelmus method, which has been favourably reported on in Germany, electric signals are given in the cab of the locomotive itself, the electric power to actuate them being conveyed by a third rail. When two trains get too near one another, first a green electric lamp glows on the locomotive, then an audible signal is made, next a red lamp glows, and, finally, the steam valve of the locomotive is automatically closed.

"Template" and "Rebate."

WE have received a letter from a manufacturing firm asking us if we can give them an opinion as to whether "Template" and "Rebate," or "Templet" and "Rabbet," are the correct forms for these two words, as they wish to use them correctly in a catalogue of their work about to be issued. It is a very sensible question to ask, but not an easy one to answer to every one's satisfaction, since authorities differ. Both Gwilt's "Encyclopædia" and the "Dictionary of Architecture" give "Templet," and the latter says of "Template"—"an incorrect form of *Templet*." Is it incorrect? *Templet* is a purely French word, and has a foreign look about it; "Template" is merely the French word altered into an English form; a very common process in our language in the adaptation of words from the French, and therefore we think justifiable. In regard to the other word, both Gwilt and the "Dictionary" give "rebate," the latter adding "sometimes, and perhaps more correctly, written *rabbet*." The excuse for this remark is that it is supposed to be derived from the French *rabattre*—"to beat down," "to turn down"; though Annandale's English dictionary, which gives "rabbet," derives it from the French *raboter*, "to plane." Johnson's dictionary recognises "rabbet" as a carpenter's word, and gives the correct meaning, but also gives "*rebate*—groove or channel sunk off the edge of any piece of material;" the word also occurring in old English as a verb, in illustration of which Johnson quotes from Shakespeare—

> "He doth rebate and blunt his natural edge
> With profits of the mind, study, and fast."

Our conclusion is that "rebate" is the original English word, and that "rabbet" is merely the uneducated joiner's corruption of it. We maintain therefore (as we have already written to our correspondents), that "Rebate" is certainly correct, and that "Template" is a better and more English form of word than "Templet," and therefore preferable.

"Reduced" White and Red Lead.

THE White Lead Corroders' Trade Section of the London Chamber of Commerce has asked us to call the attention of our readers to the fact that a petition is about to be made to the Board of Trade with the object of inducing the Board to introduce into Parliament a Bill to render illegal the practice of selling adulterated white or red lead as "Best" white or red lead. It is proposed that it shall be made compulsory to mark all packages containing adulterated white or red lead with the word "Reduced," and that all such sophisticated material shall be invoiced as "Reduced white or red lead." We are entirely in sympathy with the object of the petition, for it is an open secret that white and red lead are very extensively adulterated with barium sulphate and other cheap pigments, and then sold as genuine materials. We do not consider the use of the word "Reduced" an altogether happy means of conveying the information that the article is adulterated, but in the course of time the true significance of the word would no doubt become generally understood. All grinders, dealers, or users of white or red lead who are willing to sign the petition are invited to communicate with the Secretary of the London Chamber of Commerce, 10, Eastcheap, London.

The London Institution, Finsbury-circus.

IT is announced that the proprietors have under consideration various schemes for dealing with their property in Finsbury-circus with the object of increasing the present resources, which yield an income of about 3,000*l.* per annum, of the London Institution. The proposals before them comprise amalgamation with another similar foundation, the letting on building leases of some land owned by them in the near neighbourhood, and removal to a new and less costly site. The Institution was established in 1805-6 by a proprietary body "for the advancement of literature and the diffusion of useful knowledge," and had its first home at what had been Sir Robert Clayton's house, *temp.* Charles II., No. 8, Old Jewry, where Porson lived as librarian. In 1812 the library and offices were removed to King's Arms-yard, Coleman-street. Seven years afterwards the institution migrated to the buildings which had been erected by Cubitt in the then Moorfields, at a cost of 31,124*l.*, after plans and designs by William Brooks, upon a site which is now valued at some 350,000*l.* The Corinthian portico of the façade, in Portland stone, is an adaptation from the Temple of Vesta at Tivoli. The library measures 97 ft. by 42 ft., and is 28 ft. high; in the rear is the theatre or lecture-room, having a capacity for 700 persons. Adjoining are the apparatus-room and laboratory; of the latter, designed by W. H. Pepys, F.R.S., there is a view in Parke's "Chemical Catechism," twelfth edition, 1826. The collection of books, begun with a portion of the library of the first Marquis of Lansdowne, is uncommonly rich in English antiquities and specimens of early printing; it includes also a large collection of topographical works gathered by William Upcott, who in 1808 succeeded Porson as librarian. Another librarian, about fifty years ago, was Richard Thomson, author of the valuable book, "The Chronicles of London Bridge," 1827.

St. Philip's Chapel, Regent-street, S.W.

LORD MORLEY, Chairman of Committees of the House of Lords, has found as proved the preamble of an unopposed Bill for the sale and disposal of St. Philip's Church, Regent-street, and the Bill is ordered to be reported to the House for third reading. The measure is promoted by the Bishop of London and the Rector of St. James's, Westminster, patron of the incumbency, as trustees; the proceeds will be paid to the Ecclesiastical Commissioners for application to other spiritual purposes and to extinguishment of all existing interests in the chapel, with its pews, vaults, and cellars now enjoyed by persons other than the trustees; the site and soil are to be vested in the trustees for purposes of sale or lease by them. The church was built in 1819-20 from plans and designs by G. Stanley Repton for his brother, the Rev. Edward Repton, at a cost of 15,000*l.* It has a spacious tetrastyle portico, after the Roman Doric order, with a deep angle-pediment and a boldly projecting cornice having widely spaced dentils. The square tower is surmounted with a copy of the Choragic Monument of Lysikrates at Athens. A view of the building, after a drawing by T. H. Shepherd, 1827, will be found in Elmes's "Metropolitan Improvements."

"The Huguenots," Wandsworth.

A FINE old suburban house, with grounds extending over 34,000 ft. superficial, has been placed, as a freehold property, in the market. Known as "The Huguenots," it stands on East Hill, close to the junction of the two high roads from Vauxhall and Wandsworth Common, and opposite what used to be the Half-Moon and French-Horn fields, latterly covered with roads and streets. The house, which was for some while occupied by the Boyson family, and latterly as a private asylum, derives it name from the adjacent burial-ground known as "Mount Nod," in the angle of the two roads. Mount Nod was used as the cemetery of the French Huguenots, chiefly dyers and hat-makers, who found refuge in Wandsworth in 1685, and worshipped in the old French Chapel in the High-street, opposite the parish church, originally built in 1573 by a colony of Flemings, whom Aubrey describes as workers in brass. The chapel, since enlarged, was pulled down in 1882, when its site was taken for the Memorial Hall built by the Congregationalists.

The Dutch Gallery.

THE present collection of works at Mr. Wisselingh's gallery in Brook-street is not, we must confess, a very attractive one. It largely consists of what we should call puzzle pictures—very dark and dingy and in which it is difficult, in some cases impossible, to make out the subject at all; Nos. 2 and 3, for instance. Mr. Watts exhibits another edition of his curious fancy of "The Horses of the Sea"; Mr. C. Ricketts three brown studies of which the less said the better; Mr. C. H. Shannon has four monochrome or nearly monochrome studies of mystical interest, interrupted in the centre by a half-length portrait of a lady by Mr. Whistler, also dingy in colour and with an arm drawn and painted anyhow; and Mr. Bauer shows some landscapes in Spain which look rather as if painted with mud as a medium; but there is a school of that kind of paint-

ing now. Mr. Legros exhibits a rather larger picture under the title "Les Bucherons," which of course has some of his quality in it in regard to feeling and composition, but is weak and conventional in texture, and looks rather as if it ought to have been an etching. The relieving points in the collection are a small flower painting by M. Fantin-Latour, and a very good landscape, "Blossom," by Mr. Conder, which reminds one rather of the style of Mr. Mark Fisher, though rather more finished in execution. But in the main it is what we call a very depressing exhibition; artistic intention cannot altogether atone for such masses of colourless gloom.

Paintings of Sicily and Venice.

AT the Society of Fine Arts Gallery is to be seen a collection of oil paintings illustrating Venice and Sicily, by Mr. W. Logsdail, which is of exceptional interest and excellence. Architectural subjects predominate, and Mr. Logsdail paints architecture with remarkable force and truth. In his Sicilian subjects, too—mostly at or in the neighbourhood of Taormina, he gives us emphatically to realise the strong sunshine and heat of Sicily. Nothing could be better in this way than the "Entrance to the Palazzo Ciampoli, Taormina" (12), with all the details of stone and brickwork glaring in the sun; and he gives the texture and surface of masonry, and not merely its colour. A larger work, "Early Morning in June at the Greek Theatre, Taormina" (16), with the remains of the proscenium architecture yellow in the sunlight, and Ætna as a background, is one of the finest pictures we have seen of this often-painted locality. Another fine composition is "Naxos and the Sea and the Porta Catana" (21), with a heavy machicolated gate-tower in the foreground, standing out solid and vivid in front of the landscape. Among the Venetian pictures is a fine view of "the Campanile, the Palace, and the Prison" (10), the largest of the Venice scenes, with the water blue and bright in the sunshine and buildings glittering. "L'Abbazia della Miseracordia" (37) is an interesting little corner of architecture; still better is another small painting "The Eastern Angle of the Doge's Palace" (17). Among others we may mention "Sta. Fosca, Torcello" (59), with its grey stained columns, alternately round and octagonal, and their Byzantine-looking capitals; "A Summer Evening at the Naumachia, Taormina" (2); and "A Garden Seat at Sta. Catterina Taormina." Architects should see this exhibition, for it is not every day that one finds architecture so well treated in painting.

Sketches in and near Rome.

AT the same Gallery is also to be seen a small collection of water-colour sketches by Mr. F. A. Rawlence, under the title "In and Near Rome." These are mostly rather slight broadly treated sketches, marked by freedom of style and good sense of colour and composition, but rather wanting in force in the architectural details. "A Stormy Day on the Terrace of Villa d'Este" (16) is a fine piece of landscape effect, with the dark cypresses standing upright against the sky; "Looking over the Campagna from the Villa d'Este" (12); "Desolate Ostia" (29) with its forlorn row of columns; "Winter Storms over the Campagna near Rome" (36)—these are among the best of the sketches, which have both topographical and picturesque interest.

LETTER FROM PARIS.

THE thirty-first annual Congress of French Architects organised by the Société Centrale des Architectes will be held at Nantes from June 6 to 11. Visits will be made to Angers and to Mans, and the Congress will terminate its proceedings at Paris on June 13 at the Ecole des Beaux-Arts, when the distribution of awards will take place, and the usual banquet. The principal subjects to be discussed will be: The Responsibility of the Architect; Public Competitions; The "Series de Prix" or the Official Price-book; The Provincial Schools of Architecture; The Architect and the New Sanitary Regulations; The Right of Property in Artistic Designs and Photographic Reproduction; and a Notice on the Life and Works of the late Achille Hermant, by M. Charles Lucas.

M. Emile Rivière, sub-director of the laboratory of the Collége de France, has just discovered at Paris in the Rue Hameau, in the Saint Lambert quarter, an important Gallo-Roman necropolis for burials and incinerations. He has advised the Vieux Paris Committee of his discovery, and a sub-committee of its members will visit the excavations in order to decide what will be the best to be done with this interesting discovery.

The interior of the cathedral of Notre Dame is now lighted by electricity. The innovation is much criticised.

The Senate and Parliament have approved the loan to be made by the City of Paris to the Assistance Publique of the sum of 1,800,000*l.*, necessary for the partial rearrangement of the service of hospitals at Paris. M. Mesureur, the Director of the Assistance Publique, has formed a committee for the purpose of advising on the various schemes now being prepared by the administration for the reconstruction of a certain number of the Parisian hospitals. This committee is composed of MM. Bouvard, Nénot, Pascal, Bunel, and Girault (architects), along with various leading doctors, and three municipal councillors. The above amount will be utilised as follows: a new hospital to replace that of La Pitié, 256,000*l.*; hospital to replace that of Aubervilliers, 128,000*l.*; a new hospital with a school for nurses, 400,000*l.*; enlargement of the hospital of Berck-sur-Mer, 60,000*l.*; reconstruction of the hospital of Cochin-Ricord, 380,000*l.*; enlargement of the sanatorium of Hendaye, 20,000*l.*; reconstruction of the hospital, Broca, 76,000*l.*; and various important repairs to other hospitals, 480,000*l.*

The Government has commissioned MM. Umbdenstock and Roger Bouvard with the construction of the official pavilion at the Exhibition of St. Louis in 1904. This building will be an exact reproduction of the Grand Trianon at Versailles. The sum to be spent is 17,000*l.* M. Umbdenstock was the architect of the Palais des Armées de Mer et de Terre at the Paris Exposition of 1900, and M. Roger Bouvard is the son of the well-known director of the Service of architecture of the city of Paris.

The next excursion of the Amis des Monuments et des Arts, organised and guided by M. Charles Normand, will take place early in June. The main object will be the old Swiss Chalet in the Park of the Mineral Station of Passy. The visit has been allowed by special favour from the Baroness Bartholdi. The visit will comprise the Pavillon des Baigneurs of Abbé Le Ragois, of the style of the eighteenth century, with its interesting decorative woodwork of the same style; the curious vaults and gallery of games, the terraces, the magnificent park, and the old pavilions. The old and authentic "Chalet Suisse," almost entirely unknown to Parisians, with its interesting decorative and painting work, will also form portion of the visit. M. Marcel Leroy will conduct the party, and explain the buildings and other objects.

The Committee of the Hertford British Hospital at Levallois-Perret, Paris, has decided to put into hand at once the arrangement of a new operating theatre to replace the existing one which was installed some thirty years ago, and no longer answers to the requirements of modern surgery. The architect is Mr. Arthur Vye-Parminter, an English architect practising in Paris.

The Medal of Honour for Architecture at the Salon has been awarded to M. Chaussemiche for his restoration of the Acropolis of Auxue, which was referred to and described in our recent article on architecture at the Salon. M. Chaussemiche is a pupil of M. André and M. Laloux, and obtained the Grand Prix de Rome in 1893. In painting M. Gabriel Ferrier carried off the honours, and M. Hannaux in sculpture. In the Section of Architecture the jury awarded medals also to M. Munier and M. Nodet.

M. Clement Ganneau, who has been pursuing his investigation into the case of the disputed tiara of Saïtapharnes, has now expressed himself fully convinced that it is really the production of the Jew artist of Odessa, Rouchanrousky, whose work has thus gained a fictitious importance and celebrity rather annoying to French artists, who confine themselves to producing their own work in an open manner, and do not indulge in the manufacture of imitation antiques. The production which has been the subject of so much controversy is now to be removed from the Louvre and find a more suitable place in the Musée des Arts Decoratifs. The clever fabricator has at all events gone off with flying colours.

M. Stanislaus Ferrand, the editor of the *Journal du Bâtiment*—one of the few architects with a seat in the Legislature—has been criticising rather strongly the doubtful methods of the Paris Municipality in honoring the memory of Charles Garnier. As it has been decided to give Garnier's name to a street, it was supposed that it would of course be a street in the vicinity of the Opera House; instead of which, the Municipality has fixed upon a new street recently opened across the site of the old prison of La Roquette, a place which was the last abode of those condemned to death, and where the guillotine stood for many years. To choose such a site for commemorating a distinguished artist, whose great work was not even anywhere near the neighbourhood, is regarded as a most singular and unfortunate blunder, especially in connexion with the indefinite postponement of the inauguration of the monument to him.

We referred in a former letter to the unsatisfactory manner in which the Grand Palais des Beaux-Arts is already showing signs of deficiencies in construction. The heavy rains of the early part of May gave unfortunate evidence also that the glass roofing is defective either in principle or in construction, for during one of the violent storms at that time the rain came through the roof to such an extent that the spectators in one of the larger picture-galleries were seen walking about with umbrellas over their heads. It is hardly creditable that this should be the case with a roof that has only been up three years.

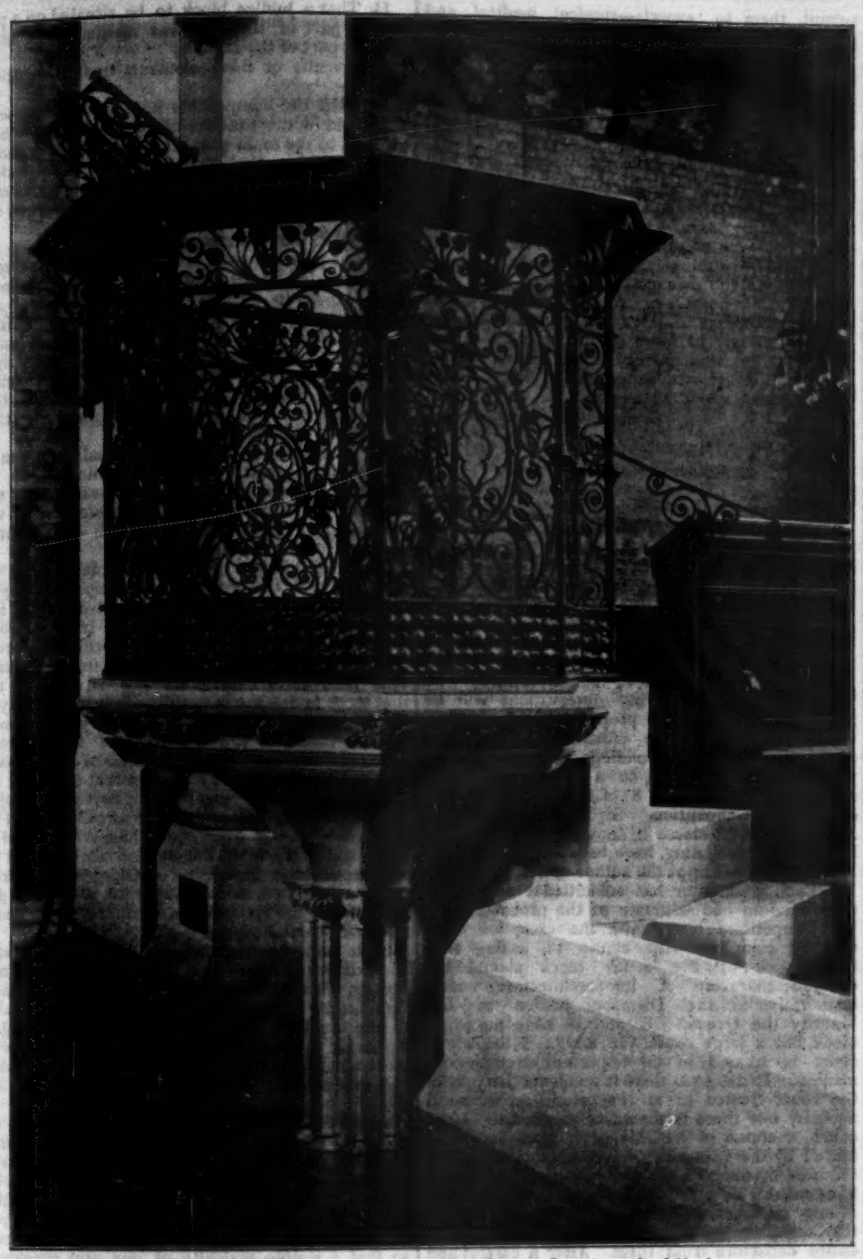
The recent fête of the Villa Medici students is to be permanently commemorated in a work of art. M. Ollivier Merson had produced, for the card of the official soirée, a design so good that it was thought a pity that it should be used only for an ephemeral occasion; and the Government accordingly commissioned the artist to develop it into a decorative picture, to be reproduced in tapestry at the Gobelins manufactory, and preserved at the Villa Medici as a souvenir of the Fêtes of 1903.

The site for the monument to Pasteur, after the model left complete by Falguière, has at length been settled on; it is not to be on the Place Medicis, as the subscription committee originally wished, but on the Place du Puits Artesien at Grenelle. The spring of warm water there is to be conveyed through pipes to supply a public bath; and M. Girault, who is to carry out the pedestal of the monument, will utilise for that purpose the foundation of the Colonne de Breteuil.

M. Girault has also been commissioned to rebuild the tribunes on the race-course at Longchamps, in the Bois de Boulogne; the Municipal Council are charmed with the designs made for this purpose by the gifted architect of the Petit Palais.

The whole of the vestiges of the last great exhibition have not yet disappeared, and yet there is already discussion, in official circles, as to the exhibition which will possibly succeed it in 1910.* We say "possibly," for Parliament as well as the Municipality has a part in the decision; and it is unquestionable that in the industrial world there has arisen a

* We sincerely hope that nothing so foolish will be done. Exhibitions on this scale at every ten years would be the ruin of Paris, in every sense: once in a quarter of a century is quite often enough.—ED.



Pulpit, St. Stephen's, Portsea. Mr. R. A. Crowley, Architect.

decided feeling of hostility to these great shows, of which the last was larger than any of its predecessors, and in a practical sense was very disappointing to the exhibitors. It has been suggested that it would better, in future, to specialise these exhibitions more, devoting each one to a class of production instead of making it universal. M. Gervais, deputy for the Seine, has introduced a proposal, for instance, that in 1905 there should be an international exhibition of science and art applied to automobilism and to sports in general. It is not yet known what kind of reception this proposal will meet with from the Chamber.

One of the ablest official architects to the municipality of Paris, M. Charles André Duprez, has died, in his sixty-ninth year. He was a pupil of Questel, obtained an unusual number of prizes at the Ecole des Beaux-Arts, and was the first recipient of the architectural diploma instituted by the Government in 1869. Having entered, in 1864, into the employ of the Administration, he was Inspecteur des Travaux successively at the Tribunal de Commerce, the church of La Trinité, that of Notre Dame des Champs, and at the Ecole de Médecine. A number of buildings and restorations—some of them, as in the case of St. Sulpice and St. Germain des Près, of a difficult and delicate nature, gave evidence of his talent and erudition. He was one of the founders of the Société Centrale, and one of the original members of the Caisse de Defense Mutuelle.

HIPPODROME, WIGAN.—A new hippodrome is to be erected at Wigan from the plans of Messrs. Owen & Ward, architects, Birmingham. The building is to be erected in King-street, and will accommodate nearly 3,000 people

MEMORIAL PULPIT, ST. STEPHEN'S CHURCH, PORTSEA.

THE pulpit of which we give an illustration has recently been erected in St. Stephen's Church, Buckland, Portsea, as a memorial.

The superstructure is of wrought iron, the lower panels being filled in with repoussé copper, and stands upon a stone base. It was executed by Mr. W. Höfler from designs by Mr. Reginald A. Crowley, both of London.

THE LIVERPOOL CATHEDRAL COMPETITION.

WE have been asked to publish the following communication from the Cathedral Petition Committee :—

"*Liverpool Cathedral.*

The several contradictory decisions of the Cathedral Executive Committee regarding the proposed cathedral for Liverpool have been considered by the Liverpool Cathedral Petition Committee, and the following statement has been issued by them to the Press :—

With the present decision of the Cathedral Executive Committee to adopt the design of Mr. G. Gilbert Scott, and to endeavour to enlist sufficient funds to enable them to erect the building upon St. James' Mount site, the Liverpool Cathedral movement seems to have, for the moment, become a somewhat parochial effort to provide a large church for the more especial benefit of one district of the city of Liverpool, and that not a particularly central or populous one.

If this be considered a desirable attainment by those who may be found willing to subscribe to it, there is, perhaps, no great reason why their desires should not be gratified ; but, if subscriptions are to be sought for outside of the particular district affected, it should be clearly understood to what those who subscribe them are contributing ; and the Petition Committee would therefore be glad, upon receipt of stamped and addressed envelope, to forward to intending subscribers copies of such of their publications as may afford light upon the subjects of the nature and relative position in the diocese of Liverpool of St. James' Mount site, the impossibility of orientating the intended building thereon, the probable cost of rendering the foundations sufficiently stable to support the fabric, and suchlike.

As regards Mr. G. Gilbert Scott's design for a cathedral, the Petition Committee have to say that if the religious needs of the present century can be perfectly met by a mediæval form of building, and the æsthetic demands of the twentieth century can be satisfied by lifeless copies of thirteenth-century craftsmanship, then there seems likelihood that the combined efforts of two such faithful disciples of the Gothic revivalists of the past century as Mr. G. Gilbert Scott and Mr. G. F. Bodley, R.A., will be capable of producing that result.

The Petition Committee are satisfied that in due time it will be fully realised by all that there are nobler and more complete ideals possible than these, and they are encouraged by the work and the designs of men like Professor Beresford Pite, Mr. Leonard Stokes, and others, to believe that there are living architects capable of fulfilling them.

That the man and the hour will be forthcoming for the fulfilment of these higher aims in Liverpool is the confident expectation of the Petition Committee.

Committee Room, 6, Dale-street, Liverpool,
May 28, 1903."

In respect of the opinions expressed in the above communication, we may here reprint the words which closed our article on the Cathedral designs last week : "What we regret is that, if this cathedral is built, the century will hardly be half out before it will be regarded as an anachronism."

ARCHÆOLOGICAL SOCIETIES.

NEWCASTLE SOCIETY OF ANTIQUARIES.—A meeting of the Newcastle Society of Antiquaries was held on the 22nd ult. in the Castle, Mr. Richard Welford presiding. The Secretary (Mr. Blair) read a letter from the Secretary to the Bede Memorial movement, intimating that a site had been granted for the memorial at Monkwearmouth. Mr. R. O. Heslop, F.S.A., Junior Secretary, read a note on a newly-discovered Roman altar from the bed of the River Tyne at Newcastle. He said that divers had been employed by the River Tyne Commissioners for some time past in clearing away obstructions from the north channel under the Swing Bridge. When thus engaged, the men found a Roman altar and detached base stone, embedded in the river bottom. Mr. James Walker, C.E., the River Engineer, had the objects removed to a place of safety. The altar was 4 ft. 3 in. high, and measured 19½ in. across its base, and an equal width across its capital. The base of the shaft and the capital united in a form of symmetrical, and it might be said even of graceful, proportions. The face of the shaft was decorated with a panel surrounding by an ogee moulding occupying almost its entire surface. The panel enclosed a representation of a ship's anchor, boldly sculptured, the surface being deeply sloped, to bring the carving into relief. The shank of the anchor was surmounted by a ring, swivelled on the head from the shank. The two arms of the anchor appeared to have been flattened towards their points, and, though the thinner edges were broken, enough was left to suggest that originally they terminated in flukes. The representation of an object so familiar, and so complete in all its details, appeared to be significant, not only of the early development of the typical form here shown, but of its long survival, for it could hardly yet be said to have been superseded. It was an example of forged ironwork, which could be produced only by handicraftsmen of great skill. Mr. C. J. Spence read a note on old anchors.

BATHS, WEST HUMBERSTONE, LEICESTER.—With reference to our notice of these baths last week, we are asked to state that the "recessed floors in mosaic" were supplied and laid by Arrolithic, Ltd., Berners-street, Oxford-street, W.

GLASGOW ROYAL INFIRMARY RECONSTRUCTION:

THE COMPETITION AND ITS RESULT.

WE have been asked to publish the following correspondence between the Glasgow Institute of Architects and the managers of the Royal Infirmary, in regard to the conduct of the competition for the new buildings. Our readers may remember that the committee threw over the recommendation of the assessor, Sir Rowand Anderson, and adopted a design which was not even among those selected by him for special consideration, and a great deal of dissatisfaction was expressed on the subject at the time. The Glasgow Institute now wish, and we think wisely, to put on record the whole facts and correspondence in regard to this Competition. We give accordingly their letter of the 29th ult. summing up the whole case, and followed by copies of the assessor's Report and of the subsequent correspondence between the Glasgow Institute and the officials of the Infirmary :—

"115, St. Vincent-street, Glasgow,
May 29, 1903.

SIR,—The Managers of the Royal Infirmary having finally rejected the criticisms of the Glasgow Institute of Architects regarding their rebuilding scheme, and refused the advice and assistance offered by that body, the Institute feels it to be its duty to set the whole facts before the general public, those on whose behalf it has acted and for whose benefit the infirmary exists.

By way of preface to the correspondence, which must be read for adequate appreciation of the situation, a short *résumé* is here given of the salient facts :—

From 1897, when the scheme was first mooted, till the end of 1899 the managers were engaged in endeavouring to obtain, under their direction, satisfactory plans from an architect selected (despite outside and inside criticism) by themselves, but those were finally set aside and a competition instituted. This was undertaken in January, 1900, when ten selected architects were invited to send in designs, Dr. (now Sir) Rowand Anderson being appointed assessor. Undeterred by previous failure, however, the managers (together with the executive committee now acting with them) *first* proceeded to have a species of preliminary competition among themselves, and as the result produced and issued to the competitors two 'suggestive and illustrative' sketch plans. Of both of these the 'Jubilee block,' fronting Cathedral-square, was an essential feature. The general lines of the sketch plans thus produced, and especially the situation of the Jubilee block, were found so radically faulty by most of the competing architects that all of them who had a previous reputation as hospital experts found it necessary to depart more or less entirely from them in the designs they submitted. Of the ten designs the assessor made a short leet of four, and a final selection of one, which he recommended for adoption. The Committee, influenced apparently by their own sketch plans and their 'own opinion as to style of architecture,' set aside the award and chose a design, outside even of the short leet, which was simply a more fully detailed copy of their 'suggestive' draft.

The Institute of Architects, in May, 1901, addressed to the Managers its first protest and appeal, criticising both the way in which the competition had been decided and the result arrived at, objecting to the whole arrangement of the selected plan as inadequate and out of date, and to the Jubilee block as shutting out the sun and air from the south, as well as at the same time vitally injuring the appearance of the Cathedral, and, finally, requesting that the whole of the plans should be submitted to one or more hospital experts before anything further should be done.

To this no reply was received beyond a formal acknowledgment and reference to an official statement to the public which appeared in the Press on May 18, 1901. In this the criticisms of the Institute were in no way answered, and its suggestion of expert assistance was ignored, but it included (with reference to points raised elsewhere) the important statement that the managers now recognised 'that the new hospital, and not a section of it (*i.e.*, the "Jubilee block") should be regarded . . . . as a fitting memorial to the sixty-three years' illustrious reign of the Queen.'

In June of the same year the Institute again addressed the managers, reaffirming its criticism, and offering to bear the expense of the course suggested should its opinions not be borne out.

To this *no* reply was received.

On several occasions during the past winter, and especially at the annual general meeting of the Infirmary, it was stated that the original scheme was to be retained *in toto*, and the work pushed on with vigour. Accordingly, the Institute thought it necessary once more to draw the managers' attention to the fact that no adequate replies had been received to its previous communications, and to press for an answer, with the result only that it was assured by the managers that it was their intention, *after* the plans had been more fully developed, to submit them to 'experts—surgical, medical, and mechanical.'

This the Institute, in reply, pointed out would in no way meet the difficulties raised, that expert guidance would then come too late, and might well be set aside as at the first stage of the proceedings. To this last appeal the secretary has replied, closing the correspondence.

It is only under a sense of duty to the public, and after repeated and careful consideration, that the Institute has felt itself warranted in criticising, and so far joining issue with the managers in their onerous and disinterested labours on behalf of a great public institution. In this instance, the Institute believes the managers' labours to have been misdirected in matters of procedure, and yet of the utmost importance, and the managers declining, as they do so far, to meet in any way the advice offered, t remains only to communicate to the public this belief.—In name and on behalf of the Glasgow Institute of Architects,

C. J. MACLEAN, *Secretary.*

Assessor's Report.

16, Rutland-square, Edinburgh,
November 9, 1900.

GENTLEMEN,—In this competition ten architects have sent in plans; two of them have sent in alternative designs, making twelve sets—in all, 158 drawings. I have gone over in detail each individual plan, and compared the accommodation given with the specification of requirements, and, generally speaking, all that has been asked for has been given, but, of course, in different ways. As the Committee have instructed competitors that a pathological institute need not necessarily be included in the plans, my observations will be limited to the Infirmary proper and the isolation wards. Each design is illustrated by the floor plans of the different buildings and elevations of the façades, all drawn to a uniform scale, as stipulated for in clause 8 of the terms and conditions of competition. Separate drawings, in accordance with clause 9, showing the method of heating and ventilating, have been submitted by all the competitors except the author of design marked H. Each competitor has submitted a descriptive memorandum and estimate of the probable cost. The competitors have, with the exception of B and D, complied with clause 18, asking that the façade of the south block should be, by the character of its architecture, commemorative of the Diamond Jubilee of her Majesty the Queen. B and D have no south block, but a large court. In design B the whole court is treated in an important architectural manner. In design D there is no distinctive part of the court treated in an important architectural manner, but there is shown in the centre of the court a statue of her Majesty. The plans submitted by the Committee have been more or less followed by some of the competitors, while others have entirely departed from them. Designs E and F may be taken as examples of closely following the Committee's plans, while designs B and D are an entire departure from them. After a careful and exhaustive study of each design, I placed on a short leet designs A, F, H, and J. In bringing to a focus my opinion of the relative merits of these designs, I have kept specially in view :—

First : careful planning, with adaptation to site, and to the amount of sunlight the buildings would receive.

Second : the manner in which the plans lend themselves to the reconstruction of the new infirmary.

Third : The architectural treatment of the building, and especially of the south front, as a commemorative memorial of the Queen's Diamond Jubilee.

I conclude to place F first, H second, J third, and A fourth.—I am, yours faithfully,

R. ROWAND ANDERSON.

115, St. Vincent-street, Glasgow,
January 21, 1901.

To the Chairman and Managers of the Glasgow Royal Infirmary.

GENTLEMEN,—Recognising it to be your earnest desire that the Infirmary, when reconstructed, should conform to the most modern standards of design in this class of building, and that the subscribers and the general public have a right to expect this, we, the Glasgow Institute of Architects, as a body of technical experts in such matters, feel it to be our duty to state that, in our opinion, this result will not be achieved if the reconstruction is proceeded with according to the plans selected by your Sub-Committee in the recent competition.

We attribute this failure not to any lack of zeal on the part of your Committee, or of ability on the part of the competing architects ; but mainly to the manner in which the competition was initiated and carried through, and that in the following respects among others :—

I. That along with the printed conditions provided for the competition there were issued two sets of sketch plans as indicative of alternative arrangements which the Sub-Committee recommended, and which were stated in the accompanying report to be drawn by, or under the direction of, two members of the Sub-Committee respectively.

II. That a Jubilee block to be situated on a particular part of the site was insisted upon as an integral part of the scheme.

The results of these elements in the conditions were :—

(*a*) That the competitors and the assessor were hampered in the exercise of their individual judgment as to the main points of importance in such a building—viz., the distribution of the various buildings with respect to each other for convenience of working and of all for the freest access of sun and air.

(*b*) That the competitors were placed in the invidious position that, in the event of the schemes recommended by the Committee not proving themselves to be in accord with their judgment and experience, they were bound, in departing from them, to meet with disfavour from those influential members of the Committee who would enter upon the examination of all the plans with minds necessarily biassed in favour of those which they themselves had put forward, while reserving their position as judges.

(*c*) That as the result, the proposal that Plan E be accepted, which became the finding of the meeting, was moved by the gentleman who was actually the author of the scheme which was adopted and worked out in detail by this competitor.

III. That neither of the sketch plans issued are in accord with the present-day principles of hospital design, as might indeed be expected, seeing that their authors have not enjoyed the training which would qualify them as surgical, medical, or architectural experts ; that, in fact, the plans are in many vital particulars inadequate and out of date, and that these faults are naturally displayed equally in the selected design, which is but an elaboration of one of them. A corroboration of this assertion with regard to the radical faultiness of the plans in question is furnished by the fact that six out of the ten competing architects found it necessary, in spite of risk of possible consequences already alluded to, to entirely throw over the schemes furnished to them, and that among this number are found all the four architects from outside of Glasgow (two from London and two from Edinburgh), who were presumably invited specially on account of their knowledge of hospital design.

Such being the opinion of the Institute after a very mature and careful consideration of the whole subject, we would most earnestly urge the Managers, before committing themselves and the public to the erection of any portion of the building, as designed, to have the plans submitted to one or more independent hospital authorities of recognised and outstanding position, for consideration and report.

Apart from the all-important question of the erection with the public funds of an entirely adequate and modern hospital, we, the Institute of Architects, feel it necessary to lodge a protest against the setting aside by the Sub-Committee, without any reason given, of the award of the professional assessor, Dr. Rowand Anderson—the more so that a simple majority of one was considered sufficient to overturn his judgment—as liable to prejudice the success, alike for promoters and architects, of future competitions in Glasgow. And we have further to state, that the erection of a Jubilee block, such as is proposed, seven stories high, and in the position selected, will, if proceeded with, dwarf and irretrievably injure for all time the external appearance of the Cathedral. The foregoing statements represent the unanimous finding of the Glasgow Institute of Architects, at a meeting specially called to consider a report of the Council on the question, and as the matter is not only one of the greatest public importance, but of extreme urgency, owing to the proposal of your Sub-Committee to proceed at once with the erection of the northern block, it has been communicated to the public Press at the same time as it is submitted, with our earnest prayer for its consideration, to yourselves.—In name and on behalf of the Glasgow Institute of Architects, C. J. MACLEAN,

Secretary.

Royal Infirmary Competition.

115, St. Vincent-street, Glasgow.
March 29, 1901.

DEAR SIR,—In acknowledging the letter of this Institute, dated January 21, the secretary of the infirmary mentioned that the matters with which that letter deals belong to the Executive Committee on the Reconstruction of the Infirmary originally appointed, of which the Lord Provost is Convener and you are Secretary, but beyond that formal acknowledgment this Institute has received no answer to the letter. I am now instructed to request a reply, and for your convenience, I enclose copy of the letter referred to.—Yours truly,

(Signed) C. J. MACLEAN.

J. Nicol, Esq., Secretary.
Executive Committee on Reconstruction of Royal Infirmary, City Chambers.

Royal Infirmary Reconstruction.

Glasgow, May 18, 1901.

DEAR SIR,—With reference to your letter to me of March 29, I had the opportunity yesterday of submitting it to the Executive Committee. It so happened that the Committee at yesterday's meeting

approved of a statement for the information of the public on the whole subject of the Royal Infirmary Subscription Scheme, and as it deals also with the matter of your letter, I send you copy of the statement, which will serve as the Committee's answer to your letter. The statement also appears in this morning's papers.—Yours truly, J. NICOL.

C. J. Maclean, Esq., *Secretary*,
Glasgow Institute of Architects,
115, St. Vincent-street.

Excerpt from Official Statement.

While such questions were being discussed between the Managers and the Executive Committee of Contributors, and between the managers and the staff, other points were raised in the public Press and elsewhere, by which the plans for the reconstructed infirmary had been selected, as well as of the adopted plan itself. It is necessary, therefore, in order to the removal of misconceptions from the public mind, to refer to the various points which have been mentioned.

The Reconstruction Plans.

In regard to the plans, this must be said—The Executive Committee and the Managers bestowed on the subject lengthened and painstaking consideration. Authorities on hospital construction were consulted, visits were paid to the best hospitals in Great Britain and America, and the views of the staff of the infirmary as to the general conditions and special requirements of the institution were carefully ascertained. As a result of all this, seven sketch plans were, under direction of the Managers, prepared by Mr. George Hill, comprehending the provisions specified by the staff, and after due consideration agreed to by the Managers as necessary for an infirmary which was desired to be abreast of the foremost institutions of the kind. Of these sketch plans, two which were specially selected by the Managers, were submitted to ten selected architects, but were distinctly stated to be 'suggestive and illustrative only,' not binding. To assist the Executive Committee in deciding on the competing plans, Dr. Rowand Anderson was appointed as their assessor, his function being, as he himself frankly acknowledged, to guide and advise, not to select. When the final selection was made, the Executive Committee fixed on a plan which the assessor reported as being *one of two which most closely conformed to the sketch plans*. The other of these two plans the assessor had placed first of all, but he had not included in his short leet that fixed on by the Executive Committee. Further interviews with the assessor satisfied the Executive Committee that its exclusion arose from no failure on the part of the selected plan in regard to vital or essential particulars, but chiefly from a difference of opinion in regard to the style of architecture and the general elevation—matters on which the Executive Committee ventured to think they were quite entitled to follow their own opinion, and the minority cordially acquiesced in the selection of the majority.

Internal Arrangements.

As regards internal arrangements, the plan selected by the Executive Committee is to be preferred, for the following reasons:—

1. That it provides on the main floor of through corridor communication from end to end of the building without passing through any of the wards.

2. On account of the superior lighting of the wards, by which every bed shall have share of a window for light and ventilation.

3. That the venereal ward shall be isolated from all other wards.

4. That small wards or side rooms are conveniently situated, so that they can be entered without passing through the main wards; and

5. It gives a promenade on the roof for convalescent patients.

Like most other plans of similar magnitude, the internal arrangements of this plan are in some respects no doubt open to modification and improvement, and every care will be taken by those responsible for the work to ensure that all the arrangements shall be as perfect as possible.

The Infirmary and the Cathedral.

It has been alleged that the buildings, being so lofty, will dwarf the Cathedral. The buildings must be lofty if the hospital requirements of the public are to be adequately met, and the Executive Committee believe that they have shown discretion in approving the architectural style of the adopted plan. It is distinctively Scottish—the national art of the fifteenth and sixteenth centuries, of which we have examples in Heriot's Hospital, Holyrood, Linlithgow, and Falkland palaces, and in our own old college lately in the High-street. It is, therefore, not only appropriate to the historical associations of the site upon which stood the castellated bishop's palace, but permitting, as it does, a limited use of Gothic forms—as in Heriot's Hospital, Edinburgh—it is more in harmony with the Cathedral itself than any classic or modern style. It was not, however, this consideration, but the superiority of the plans, which chiefly influenced the judgment of the Executive Committee.

115, St. Vincent-street, Glasgow,
June 25, 1901.

To the Executive Committee of the Contributors to the Royal Infirmary Reconstruction Scheme.

GENTLEMEN,—I duly received your letter of 18th ult., which has already been acknowledged, and I am instructed to state that the Glasgow Institute of Architects regrets that no more explicit reply has been vouchsafed to its protest and appeal, by the managers and the executive, than what is contained in the official statement issued to the public. Nothing in that statement in any way answers or refutes the objections previously raised by the Institute. The statement, indeed, rather confirms them; and the Institute therefore remains of the opinion that the plans as adopted 'are in many vital particulars inadequate and out of date'; that their distribution on the site, particularly with regard to the 'Jubilee block,' facing Cathedral-square, is bad, and that in consequence, if the reconstruction is proceeded with according to those plans, 'the infirmary will not conform to the most modern standards of design in this class of building.'

The criticisms of the Institute on the previous occasion were chiefly concerned with (1) the manner in which the competition was conducted, according to which solutions of the problem other than those put forward by the managers did not receive unbiassed and adequate consideration; and (2) the insistence on the Jubilee block as an integral part of the scheme. Such a block the Institute considered to be objectionable, because (*a*) it would shut out from the rest of the buildings the sun and air from the southern and most open part of the surrounding area, and (*b*) it would dwarf and irretrievably injure the external appearance of the cathedral.

With regard to the first of these two points, while the Managers in their letter refer to the block plans, which they had prepared with much time and labour, as being 'suggestive and illustrative only,' and this is repeated in the statement and appeal of the Executive, one learns also from this letter that 'when the final selection was made the Executive Committee fixed on a plan which the Assessor reported as being one of two which most closely conformed to the sketch plans,' *i.e.*, those drawn up by the managers. As further reason for the adoption of this particular plan, the Executive give a list of special characteristics in respect to internal arrangements which they consider to be essential or desirable features; yet these were all contained in other designs submitted, which were at the same time free from the radical defects referred to.

As to the Jubilee block, the managers now state as their sixth conclusion—'That the new hospital, and not a section of it, should be regarded as alone worthy of the city of Glasgow, and as a fitting memorial to the sixty-three years' illustrious reign of the Queen.' This is exactly the position adopted by several of the competitors, and by the Institute, while objecting, from practical reasons already stated, to its inclusion as part of the scheme. With reference to the cathedral, it is, therefore, quite beside the point for the executive to state that 'the buildings must be lofty if the hospital requirements of the public are to be adequately met,' for, while the buildings must be lofty, on other portions of the site (if that site is to be retained) there is no necessity for their being lofty in the direct alignment with the cathedral, nor, indeed, for there being any buildings at this point at all, as was shown in one or more of the plans submitted. The Institute does not admit that the injury to the cathedral is a question of architectural style; it is one of comparative height and scale. As regards these, the plan adapted is especially objectionable in that not only is the block itself seven storys high, but it has in addition a lofty spire which would further and quite unnecessarily assist to dominate and destroy the effect of the cathedral.

The Institute of Architects feel it to be their duty in the interests of the public (for whom they speak as a body of technical experts in such matters), to thus repeat and emphasise their protest, and to again most earnestly urge the Executive, before committing themselves and the public to the erection of any portion of the building, as designed, to have the plans submitted to one or more independent Hospital authorities of recognised and outstanding position, for consideration and report. Further, should the Executive object to the outlay involved in such a course, the Institute would be prepared to arrange for it and to meet the cost provided the Report did not bear out their contention, while submitting beforehand the name or names of the experts proposed, on obtaining the necessary facilities from the Executive,—Yours truly,

C. J. MACLEAN, *Secretary*.

115, St. Vincent-street, Glasgow,
February 10, 1903.

To the Chairman and Managers of the Royal Infirmary.

GENTLEMEN,—In the matter of the proposed rebuilding of the infirmary, I am instructed by my Council to remind you that in January, 1901, and again in June of the same year, a protest and appeal were put forth by this Institute addressed, in the first instance, to yourselves, and in the second to the then 'Executive Committee.' To neither was a direct or adequate reply received at the time, and it has been recently stated in the public Press that it is proposed to proceed shortly with the work on the original lines. In these circumstances, the Council of the Institute has again had the matter under consideration; it remains of the same opinions previously expressed and unanimously confirmed by the general body of the Institute, as set forth in the memorials then submitted, and of which copies are enclosed. My Council would therefore again beg you, in the interests alike of the infirmary and the City of Glasgow, to give the proposals therein contained your earnest and favourable consideration.—Yours truly,

C. J. MACLEAN, *Secretary*.

Glasgow Royal Infirmary, Secretary's Office,
93, West Regent-street, Glasgow,
February 26, 1903.

C. J. MacLean, Esq., *Secretary*, Glasgow Institute of Architects.

DEAR SIR,—I am instructed by the managers of the Royal Infirmary to acknowledge receipt of your letter dated 10th inst., and to say that they having accepted the plan adopted by the Executive Committee, believing it to be the best obtainable after a perfectly fair adjudication among ten architects of acknowledged standing, the Glasgow Institute of Architects may rest assured that the managers will spare no pains to make the new infirmary conform to the most recent advances in hospital construction. I am to add that it is their intention, as it always has been, to submit the internal arrangements, when further adjusted, to experts—surgical, medical, and mechanical—on whose knowledge and experience they can rely.—I am, yours truly,

HENRY LAMOND, *Secretary*.

115, St. Vincent-street, Glasgow,
March 27, 1903.

Henry Lamond, Esq., *Secretary*, Glasgow Royal Infirmary.

DEAR SIR,—I duly received your letter of 26th ult., which has been carefully considered by my Council, with the result that they cannot but hold it an unsatisfactory and inadequate reply to this Institute's previous memorials and letters to you on the subject.

The Institute's objections to the proposed scheme as previously expressed may, in the main, be summed up under three heads:—1. The setting aside of the assessor's award and other unsatisfactory features of the adjudication on the competition designs with the resultant injustice to the competitors. 2. The nature of the design thus selected, as regards its faulty distribution of the buildings on the site, and especially the seven-story 'Jubilee block,' placed so as to shut out the sun and air from the surrounding area. 3. The irretrievable injury to the cathedral from the contiguity of this abnormally lofty building.

Your intimation that 'the internal arrangements will be submitted to experts—surgical, medical, and mechanical'—after the further development of the plans, is therefore not to the point, as not one of the Institute's objections above stated will be met or satisfied by the course thus indicated. Further, there is no indication that other points in connexion with the internal and external treatment of the buildings, which the Institute objects to, but has hitherto refrained from specifying in detail, will be satisfactorily dealt with by such experts, or, if they are, that they will be given effect to *after* the plans have been developed, especially as the expert opinion previously engaged by the Board in the person of the assessor was disregarded, and that which the Institute now proposes is apparently refused.

The submission of the whole scheme in its present state to one or more experts of acknowledged position from a distance, which the Institute in 1901 offered to arrange for and, if need were, to itself pay for, still seems the only way in which the Board can meet the criticism of the Institute and set itself right with the public. My Council is therefore at a loss to understand why the managers have not seen their way to adopt this course in the past, and, while giving no reasons to the contrary, from the tenor of your letter, apparently still refuse to do so.

May I ask, before making this further correspondence public if found necessary, for a definite statement from you regarding the above policy.—In name and on behalf of the Glasgow Institute of Architects, yours truly,

C. J. MACLEAN, *Secretary*.

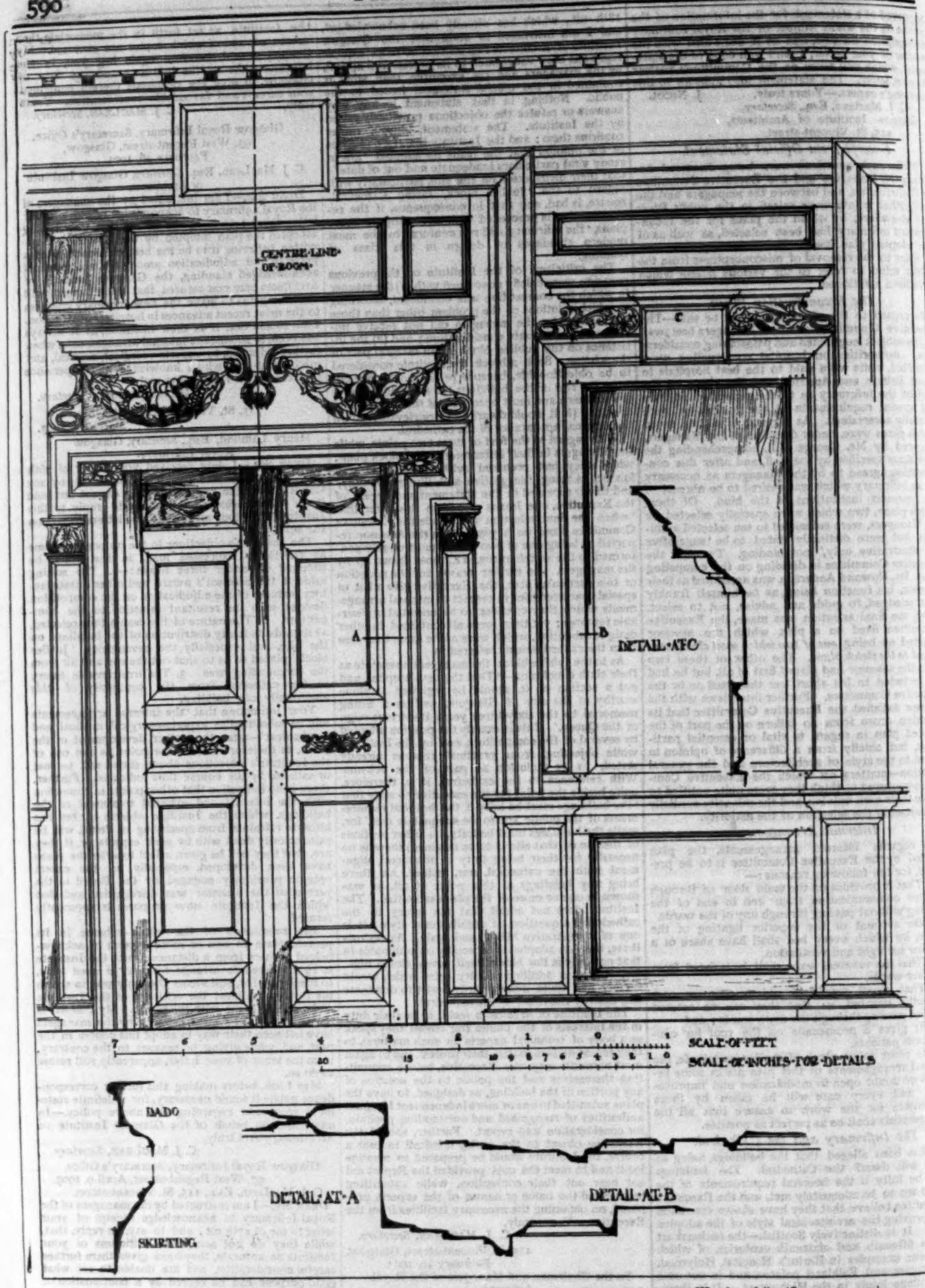
Glasgow Royal Infirmary, Secretary's Office,
93, West Regent-street, April 9, 1903.

C. J. MacLean, Esq., 115, St. Vincent-street.

DEAR SIR,—I am instructed by the managers of the Royal Infirmary to acknowledge receipt of your letter to me of 27th ult., and to say, in reply, that, while they do not accept the criticisms of your Institute as accurate, they have given them further careful consideration, and are unable to see what good purpose can be served by a continuation of this correspondence.—I am, yours truly,

HENRY LAMOND, *Secretary*."

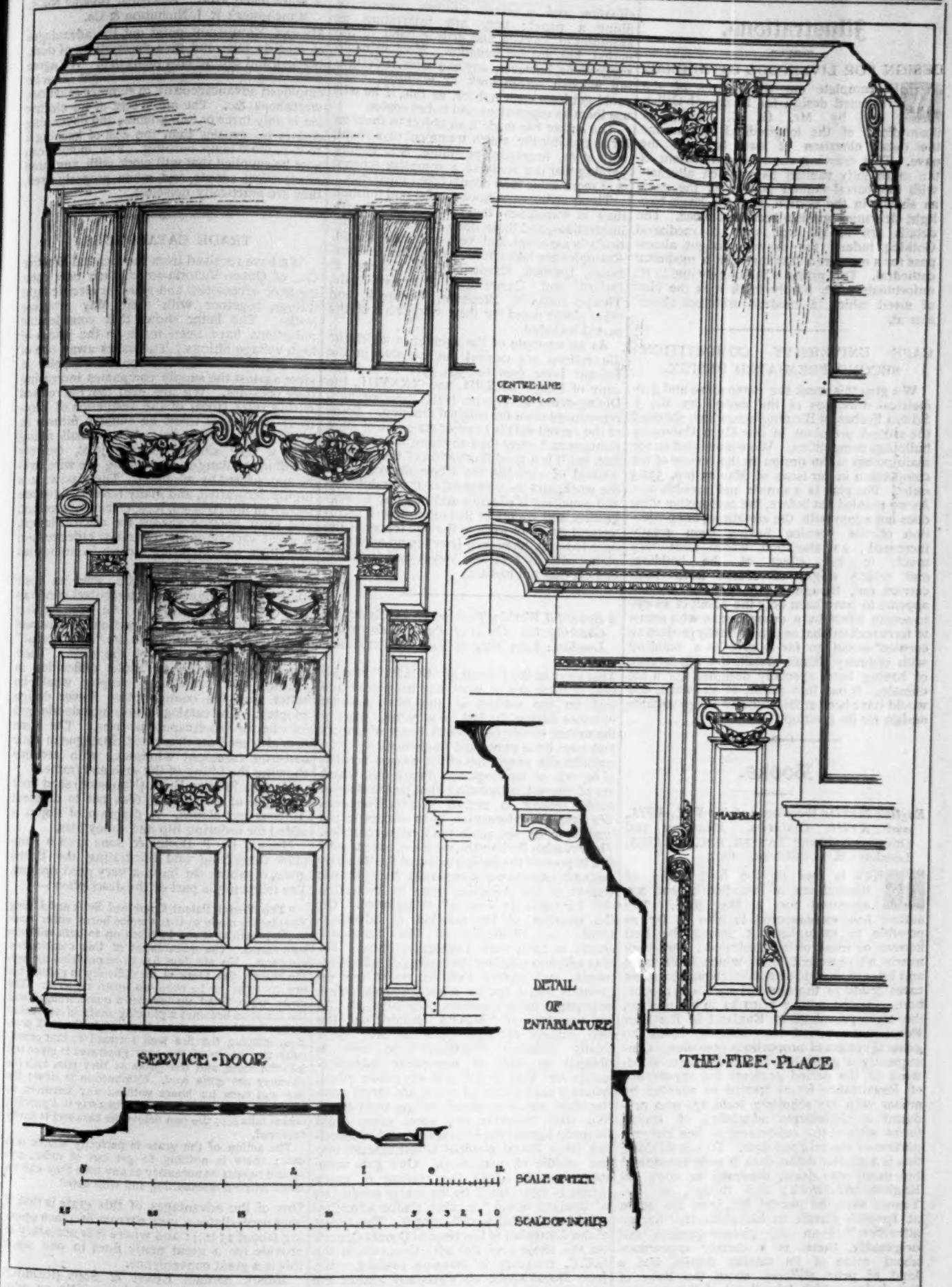
WESLEYAN CHAPEL, HAWKSWORTH, NOTTINGHAMSHIRE.—The new Wesleyan chapel and Sunday school at Hawksworth were opened on the 27th ult. The new building, which has been designed by Messrs. Walker & Collinson, of Bradford, is in the Gothic style. The chapel provides seating accommodation for 120 persons. The schoolroom and the vestry (the latter may also be used as a classroom) both communicate with the chapel, the former having a separate outer porch and entrance. A movable partition divides the two rooms.



Details of Dining-Room, Thorpe Hall: Reduced from plate in H. Tanner's "English Interior Woodwork." (See page 592.)

ENGINEERING SOCIETIES.

THE JUNIOR INSTITUTION OF ENGINEERS.—On Thursday, May 28, the members of this Institution, by permission and under the personal guidance of the Engineer, Mr. Joseph Francis, M.Inst.C.E., paid a visit to the Staines Reservoirs Communication Works of the New River Co., special arrangements for their reception having been made by the contractors, Messrs. John Aird & Sons, of whom Mr. Basil P. Ellis was present. The intake is formed at the side of the Staines Reservoirs Aqueduct, and is furnished with an automatic gauge for measuring the quantity of water received. Thence the water will flow into a suction tank having a capacity of 1 million gallons, from which it will be pumped to a height of 24 ft. into two subsidiary reservoirs having a joint capacity of 300 million gallons and a total area of 62 acres, the depth of water in each being 20 ft. The embankment of the reservoirs will be of earth, with clay puddle walls in the middle, carried down to the London clay that underlies the site. From the reservoirs the water will flow through lines of 42-in. pipe to the filter beds, first passing through tanks provided with float valves to retain the water surface in the beds at a fixed level. There will be twelve filter beds, each of an area of three-quarters of an acre. The filtered water will be pumped through a 42-in. main, 13½ miles in length, to



Details of Dining-Room, Thorpe Hall: Reduced from plate in H. Tanner's "English Interior Woodwork." (See page 592.)

Cricklewood, where it will be again pumped through a main 3¾ miles in length to a service reservoir at Fortis Green, Finchley, at a level of 298 ft. above O.D. The engine-house will contain two first-lift engines, three second-lift engines, auxiliary engines, and eight boilers. There will be in connexion therewith an octagonal chimney shaft, 135 ft. in height. Six sandwashing apparatus will be provided, and settling tanks and coke filters for treating the effluent water from the sandwashing, before its delivery through a line of pipe, two miles in length, into the River Thames. There will also be provided coal stores, offices, a fitting and other shops, stores, stabling, a residence for the manager, and cottages for workmen. From the adjoining railway a siding will be formed for the conveyance of coals, sand, castings, and other material required. The Act of Parliament authorising the construction of the above-mentioned and other works at a cost of 1,000,000*l.* was obtained in the year 1897. Notable features of the inspection included the colossal engine-house; the processes in the formation of the puddle walls for the reservoirs; the ingenious gravel-washing apparatus; puddle-clay excavation by means of steam navvy; puddle-mixing machine; locomotives, waggons, &c., on the contractor's railway, of which there are ten miles laid.

Illustrations.

DESIGN FOR LIVERPOOL CATHEDRAL.

WE complete our illustrations of the selected design for Liverpool Cathedral by Mr. G. G. Scott, by illustrations of the longitudinal section and the detail elevation of two bays of the nave. This drawing shows the treatment of the more lofty vaulted bays which alternate with the barrel-vaulted portion of the nave, as shown in the section, and the large two-light clearstory window here introduced. The details are in the true spirit of mediæval Gothic; indeed the drawing might almost pass for a measured drawing from a mediæval cathedral. This praise is thoroughly due to it; unfortunately we hardly think it is the kind of merit which a modern architect should aim at.

CAPE UNIVERSITY COMPETITION: SECOND PREMIATED DESIGN.

WE give this week the perspective and geometrical drawings of the design by Mr. J. Edwin Forbes, of Birmingham, which obtained the second premium in the Cape University buildings competition. We commented on the main points of the design in the review of the competition in our issue of May 23 (pp. 532-3 *ante*). The plan is a simple and sensible one. As we pointed out before, the perspective view does not agree with the elevations, the projection of the cornice having been greatly increased; an alteration which adds very much to the effect of the building, and which might of course have been carried out, though in the present case it appears to have been only the result of an eye to scenic effect by a draughtsman who seems to have realised that an exceptionally projecting cornice would go far to give to a building with ordinary Classic details the appearance of having been specially designed for a hot climate. It has that result, at all events, and would have been architecturally a very suitable design for its position.

Books.

English Interior Woodwork of the XVI., XVII., and XVIII. Centuries. Measured and Drawn by HENRY TANNER, JUN., A.R.I.B.A. London: B. T. Batsford. 1902.

THIS is one of the best books of illustrations of woodwork that has appeared for a long time. The author has endeavoured to turn as far as possible to examples not among the best known or most often illustrated; and they nearly all represent work which is of value and interest for its own sake, though in some cases crude in the sense of style and proportion. As the author remarks in his preface, the style prevalent in England in the later Renaissance period was one in which no general system of proportions prevailed. Consequently a great deal of the elaborate woodwork of the period presents the appearance of Renaissance forms treated or adapted by artists with no scholarly training, who produced a picturesque adaptation of Italian forms without the refinement of line and proportion of the original style. To our thinking this is a greater defect than is quite recognised but those who draw, illustrate, or copy old English woodwork; and though, as Mr. Tanner says, the mantel, &c., from the house at Ipswich shown in his plate II. "has an attraction" from its picturesqueness and originality, there is a clumsy appearance about some of its smaller details, and a kind of prim stiffness about the lines of the design, which take it out of the category of first-class art work; it is a charming sort of work to come across in an old house, and worth illustrating as an interesting and new example of the art of the time in England; but the value of the drawing is as an illustration and not as an example for study. To some extent we should say the same of Wadham screen, of which a fine illustration, reproduced from a pencil drawing, is given on Plate XVI.; the proportions of this are good, and the mouldings well profiled, but the little round-arched architectural features in the panels in the wainscot and above it are really not suitable to their situation and a rather childish manner of filling a panel; they are interesting as examples of the taste and artistic habit of the period, but not for imitation. Most valuable suggestions, however, any one who is designing wooden screen-work or wainscot work could get from such a book as this, if he will use them as suggestions and not as copies.

The author has made it an object to show as far as possible the entire treatment of a room, with door, fireplaces, panelling, &c., rightly judging that the study of a complete scheme is of more value than details taken separately.

The drawings are more careful and finished than is sometimes the case in woodwork illustrations, and those done in pencil are particularly excellent and very well reproduced. Examples are taken from work at the Charterhouse, Ipswich, Hardwick Hall, Colleges at Oxford and Cambridge, Bolsover Castle, Thorpe Hall, St. Stephens, Walbrook, and other places noted for their woodwork of the period included.

As an example of the manner in which the illustrations are carried out we give in the present issue (see pp. 590, 591) a reduced copy of Plates XXXVII. and XXXVIII., the Dining-room at Thorpe Hall, Peterborough, reproduced from the original drawing. Some of the carved details in other plates are of more richness and effect than anything shown in this one, but it is a good illustration of the author's method of showing the whole disposition of the work, and the treatment of the architraves and panelling is effective and of value as suggestion, and we prefer this more severe architectural stamp of work to the fine frenzy of the door from St. Lawrence Jewry in an adjoining plate, with its luxuriant swags and festoons; fine carving but bad art.

A Beautiful World: Journal of the Society for Checking the Abuses of Public Advertising. London: John Bale & Sons & Danielsson. 1903.

THIS issue of the Journal of "SCAPA" forms a kind of summary of what has been done and said on the subject of the advertisement nuisance during the last three years. Part of the matter consists of revised issues of papers that have been some time in circulation; but a considerable proportion of the volume consists of reports of meetings and discussions, which are of interest as throwing light on the state of public feeling in regard to advertisements. We have also information as to discussion and legislation on the subject in foreign countries. The Prussian Parliament, we learn, has passed a Bill to prevent the disfigurement of the Rhine by large advertisements on the banks. A very drastic Report of the "Société pour la Protection des Paysages de France" is included. On the question of the taxation of advertisements the Chancellor of the Exchequer seems to have very inadequate ideas. He was asked to consider the taxing of advertisements, and replied that he could see no grounds for a tax on advertisements unless newspaper advertisements were included. As the secretary of "SCAPA" pointed out, the two classes of advertisements are under totally different conditions; no one is obliged to look at newspaper advertisements, and they do not spoil any public effect, whereas the posters on walls are thrust upon the sight and one cannot escape from them. We wish, however, that some move could be made against the increasing habit of inserting large flyleaf pictorial advertisements into the middle of magazines. One gets some magazines in which the reading of every article is interrupted by the reader coming on a "monkey brand" or other similar advertisement inserted between the pages. The report of the discussion at the London County Council on the subject of the advertisements in the L.C.C. tramcars is amusing reading. Mr. John Burns spoke up vigorously against the advertisements, but was not successful. We expect, however, that public opinion will demand their suppression before long. Any one who has travelled in tramcars in cities where (as in Glasgow) no sort of advertisement is permitted, must have been struck with the superior appearance of the cars under such conditions. It is a positive annoyance to be confronted with the multifarious and gaudily-coloured advertisements to be seen in London omnibuses and tramcars.

"SCAPA" has done much already in arousing public opinion on the advertisement nuisance; we hope it will go on and prosper.

A Word about Fans. Electrical Booklet No. 3. Manchester: R. J. Nicholson & Co.

MESSRS. NICHOLSON point out the advantages of electric fans and give descriptions of desk, bracket, and ceiling fans (punkahs). We agree with them in thinking that fans might often be employed advantageously in summer in offices, workshops, &c. The initial cost of an electric fan is only three or four pounds, and its running cost is no greater than the cost of keeping a 16 c.-p. glow lamp burning. Fan motors can now be supplied that will work with any kind of electrical supply, and, when properly fixed, they are practically noiseless.

TRADE CATALOGUES.

WE have received from the General Electric Co., of Queen Victoria-street, their new catalogue of accessories and glass for electric light fittings, together with their May progress leaflet. The latter shows that considerable reductions have been made in the prices of high voltage fittings. This takes away one of the arguments from the consumer's point of view against the supply companies increasing their pressure. We are glad that the revised wiring rules (1903) of the Institution of Electrical Engineers insist on suitable fittings in high pressure circuits. A new ball fitting with a very simple locking joint, entirely avoiding the danger of twisting the wire, will be appreciated by wiremen. The glassware is highly decorative, and many novel designs are shown in flint, frosted, iced, etched, opalescent, and satin finished shades for electric lamps. A great variety of shop window reflectors are described, and the fitting for use in orchestras ought to prove useful.

The General Foundry Co. send us their illustrated catalogue of wrought-steel windows and cast-iron windows. The wrought-steel windows are excellent in sections of bars and in make, but we do not like the "ornamental" bosses at the meeting of the rails. Their practical object is to avoid difficulties in mitring, but something simpler would be better than the commonplace flower design adopted. The catalogue also includes designs for exterior fire-escape staircases. The same firm also send an illustrated catalogue of their cast-iron casement windows, with sections showing the fitting of the sash and frame.

Messrs. Stanley Bros. (Nuneaton) send their catalogue of red roofing tiles cut to different patterns and slopes. A diagram of slopes is added for ordering hip and valley tiles.

Messrs. D. T. Bostel & Sons send a pamphlet describing and illustrating the Bostel grate, of which we have a very good opinion. The following is part of the description:—

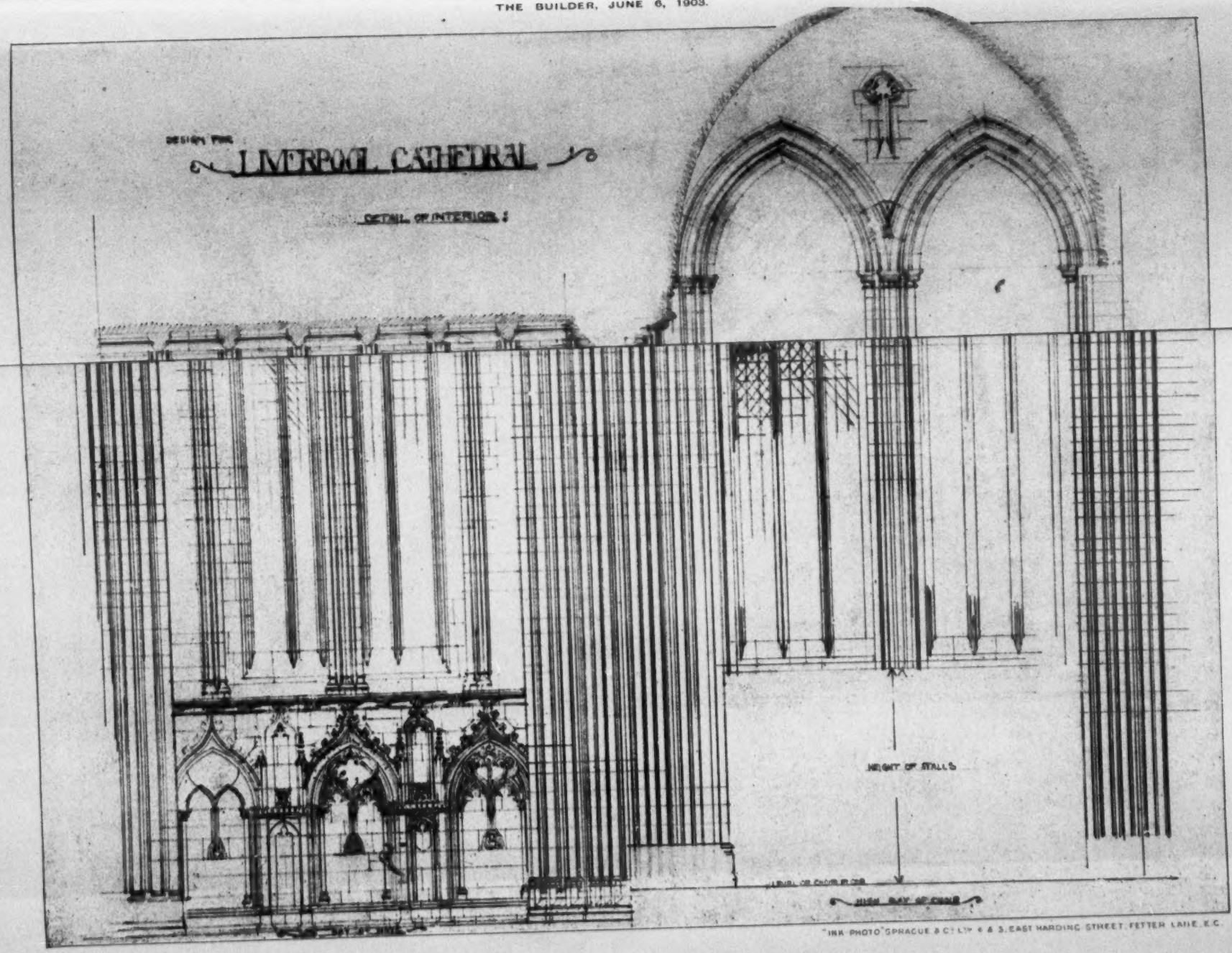
"The Bostel Patent Combined Sunk and Lifting Fireplace is made so that the fire burns either sunk in the hearth or it can be tilted up to burn with the bars raised. The advantages of this combination are great. No air duct has to be provided through the hearth, yet there is no difficulty in getting the fire to light or to burn up when required. The grate when tilted up induces a quick draught, and the fire soon becomes a glowing mass of smokeless fuel; the bars are then lowered to the sunk position, bringing the fire well forward so that practically the whole of the heat generated is given out into the room, and the gases as they pass into the chimney are quite cool. Combustion is slow; the fire will burn for hours without any attention or additional fuel, and the coal burns away to a powder, which falls into the pan below the bars and is easily removed.

The action of the grate is perfectly simple and safe; there is nothing to get out of order, and should repairs be necessary at any time they can be made without dismantling and with ease."

One of the advantages of this grate is that it only necessitates a very narrow fireplace opening (about 13 in.); and where it is necessary to provide for a great many flues in one stack this is a great convenience.

Messrs. Samuel Elliott & Sons (Reading) send us their Moulding Catalogue No. 10, with an immense number of full-size sections of machine-made wood mouldings for architraves, skirtings, hand-rails, cornices, and various smaller mouldings. The sections are not only well illustrated, giving both the geometrical section and its shaded-up effect, but they are very well designed, and architects could find from among these illustration sheets well-designed and refined sections for most purposes to which wood moulding is applied. Messrs. Elliott also send, with this catalogue, sections and description of their simple but effective "simplex weather bar" for doors and

THE BUILDER, JUNE 6, 1903.


DESIGN FOR
LIVERPOOL CATHEDRAL
DETAIL OF INTERIOR.
HEIGHT OF STALLS
LEVEL OF CHOIR FLOOR
HIGH BAY OF CHOIR
"INK PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

LIVERPOOL CATHEDRAL COMPETITION: DESIGN RECOMMENDED BY THE ASSESSORS.—Mr. G. Gilbert Scott, Architect

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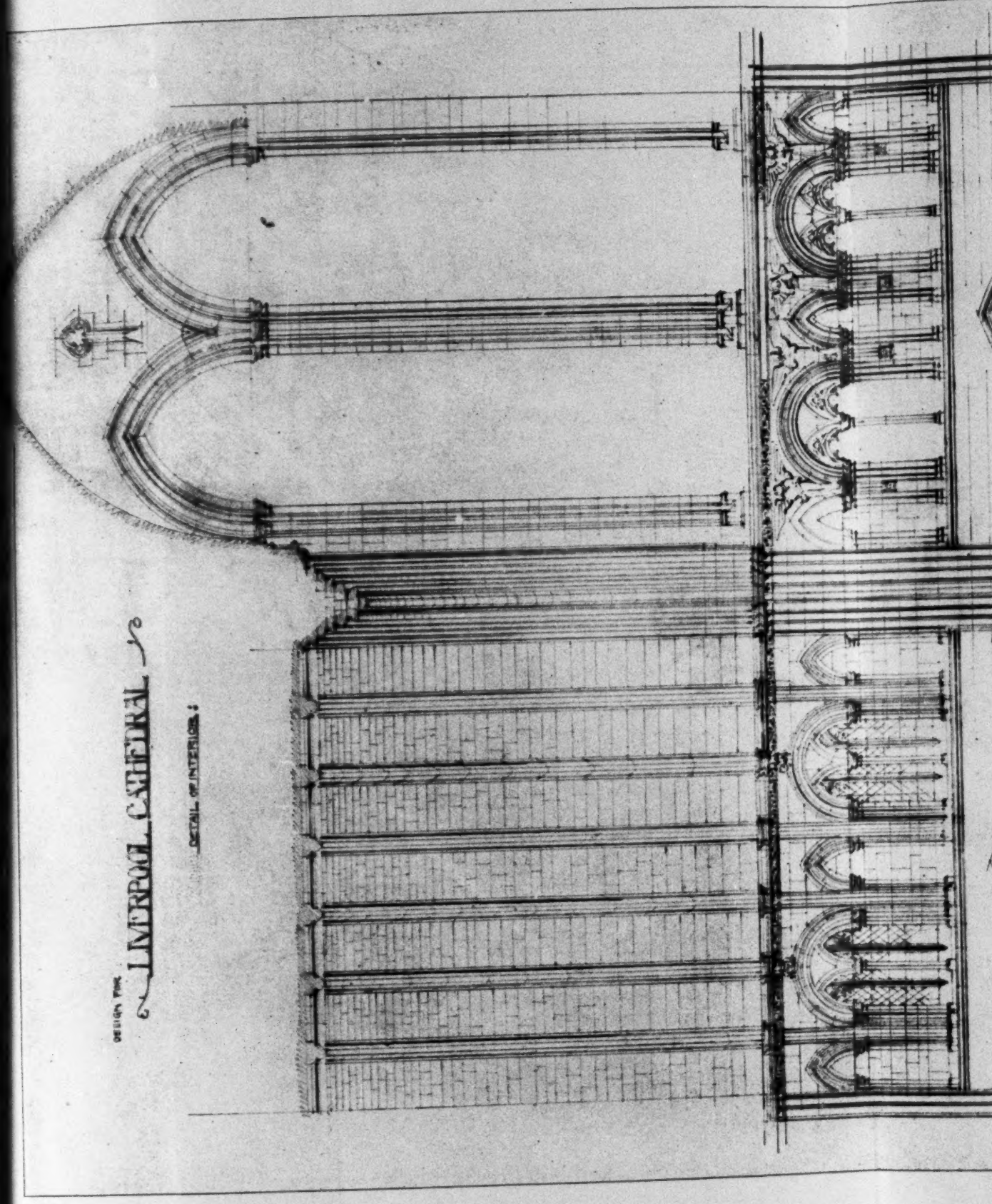
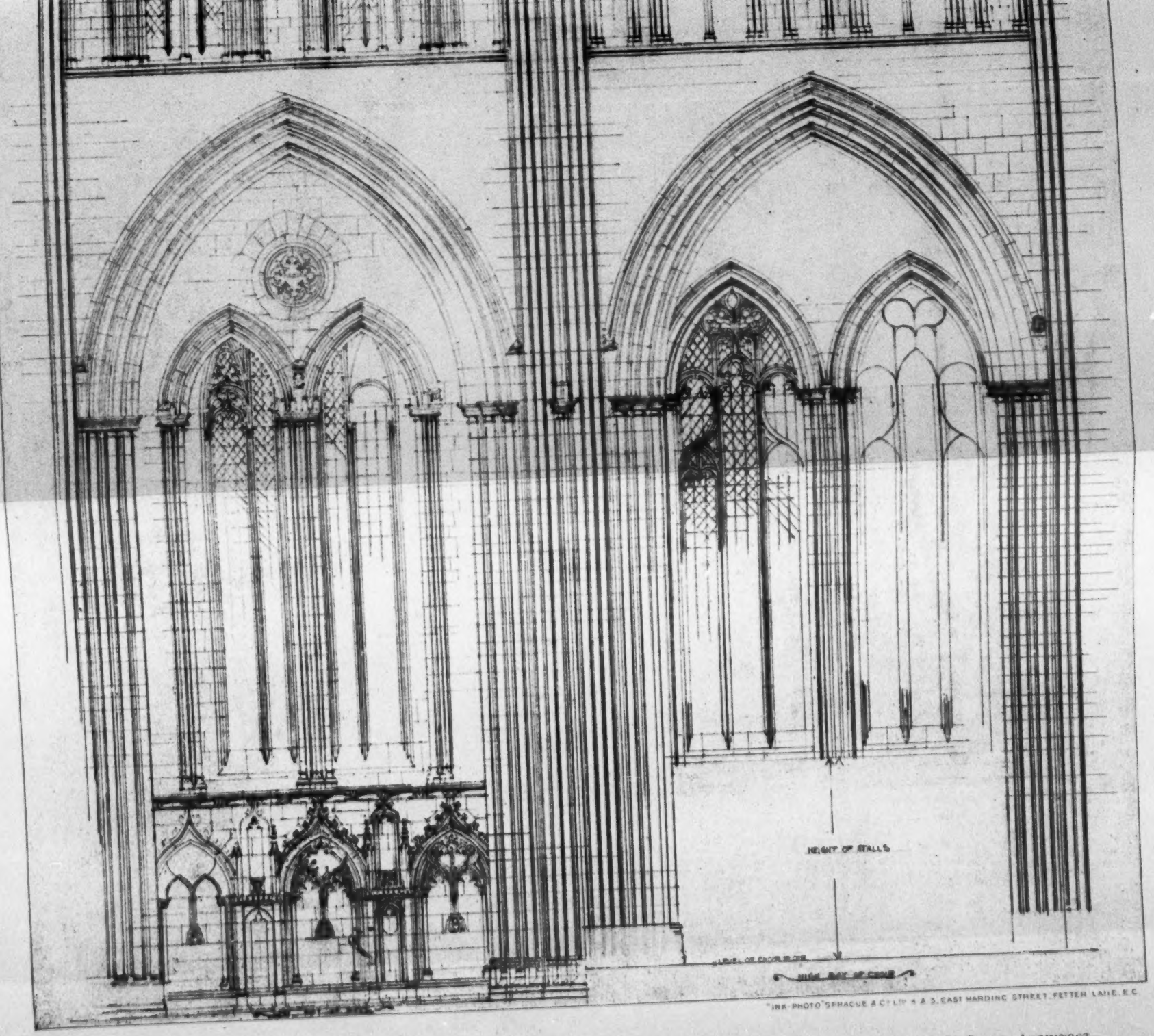


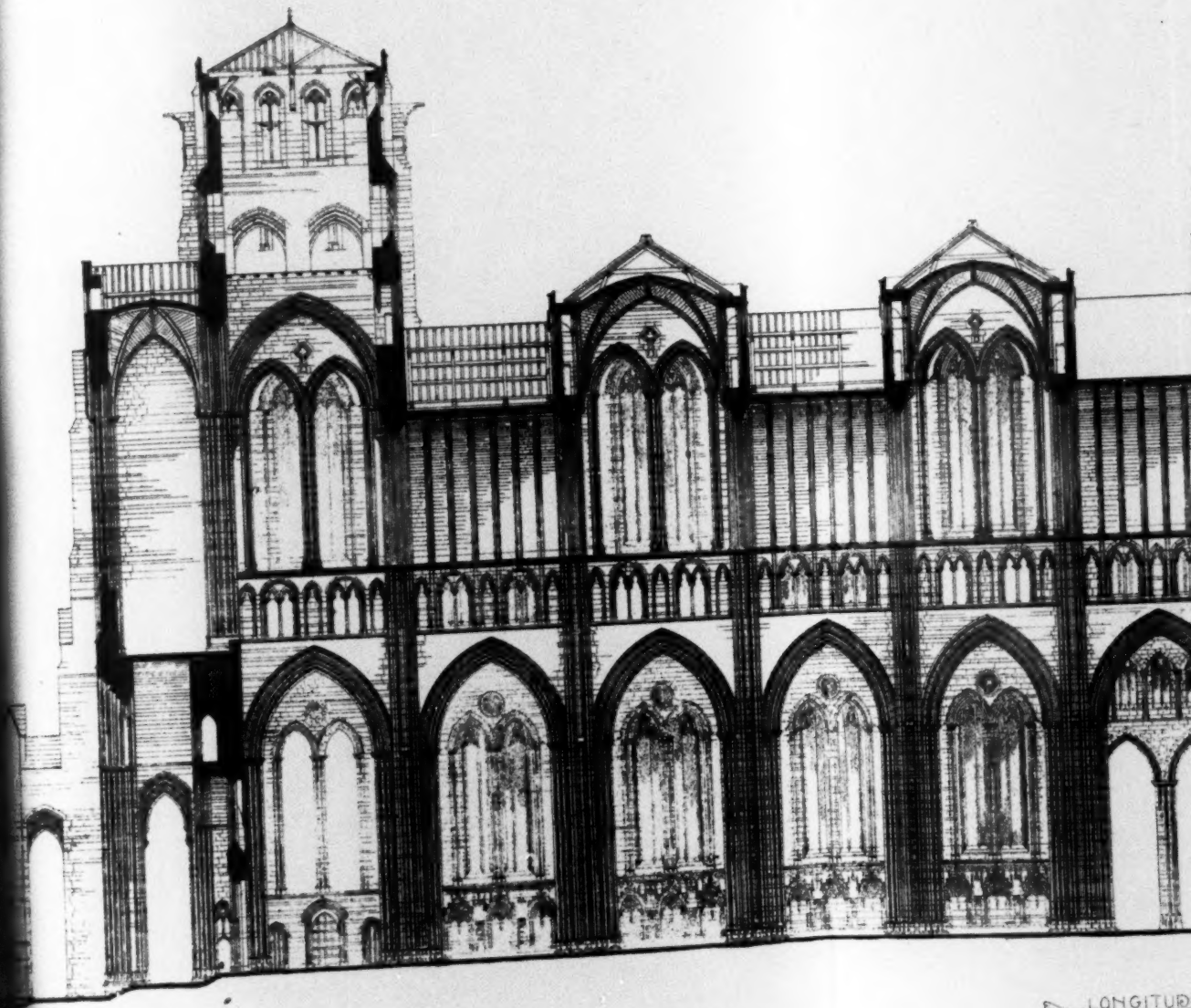


LIVERPOOL CATHEDRAL COMPETITION: DESIGN RECOMMENDED BY THE ASSESSORS.—Mr. G. Gilbert Scott, Architect

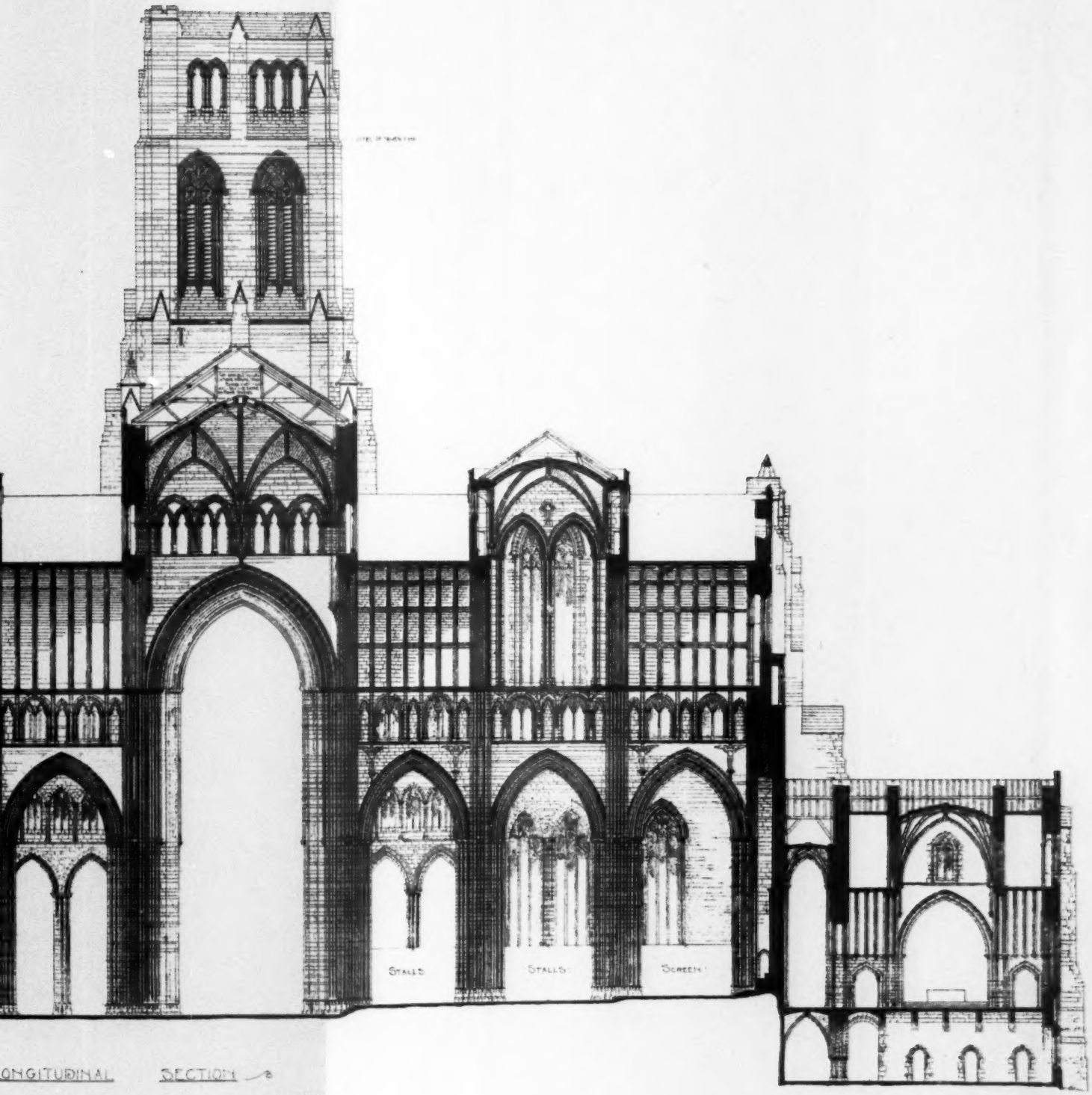
DESIGN FOR

LIVERPOOL CATHEDRAL.

SCALE OF FEET



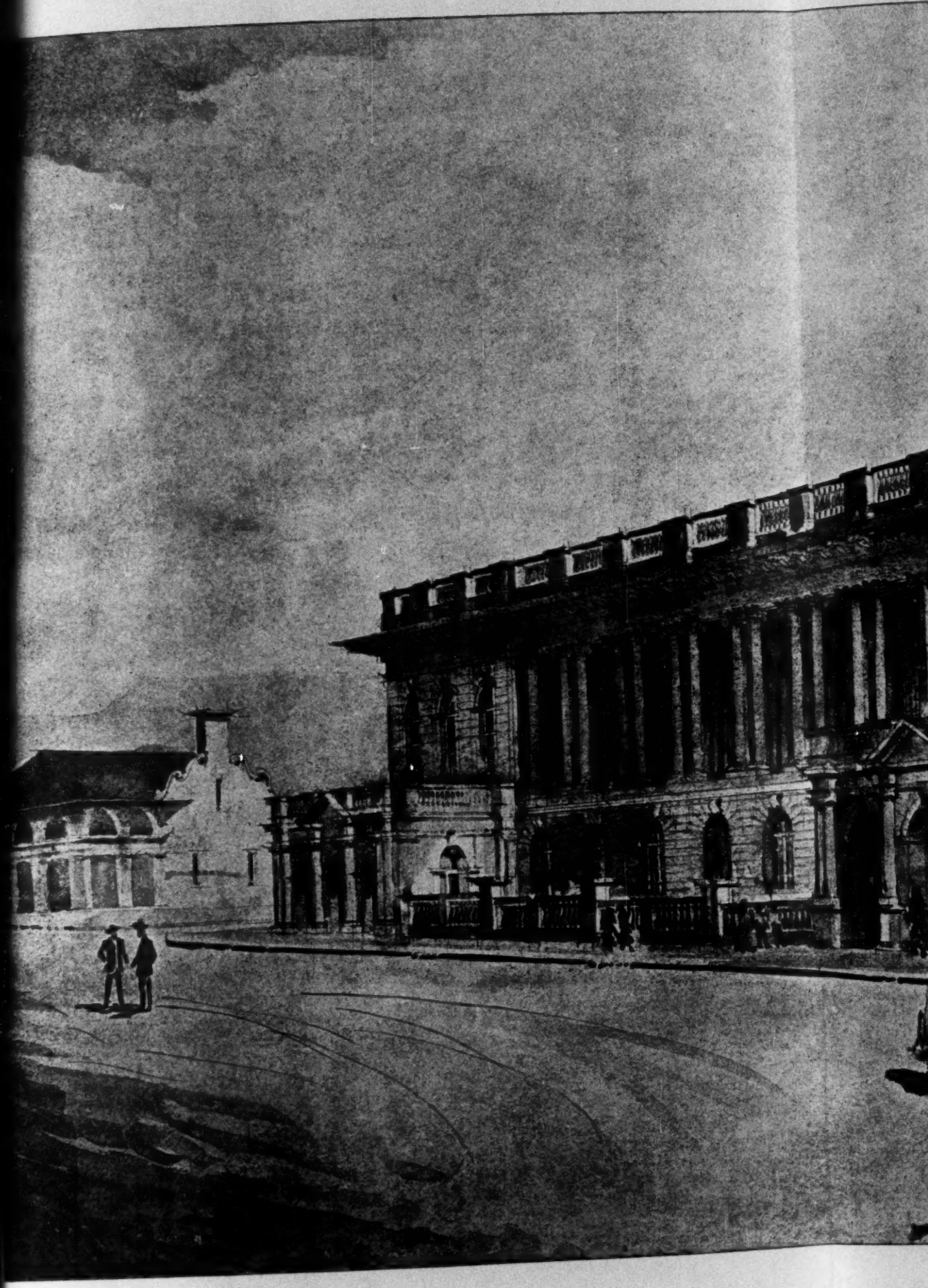
LONGITUDI



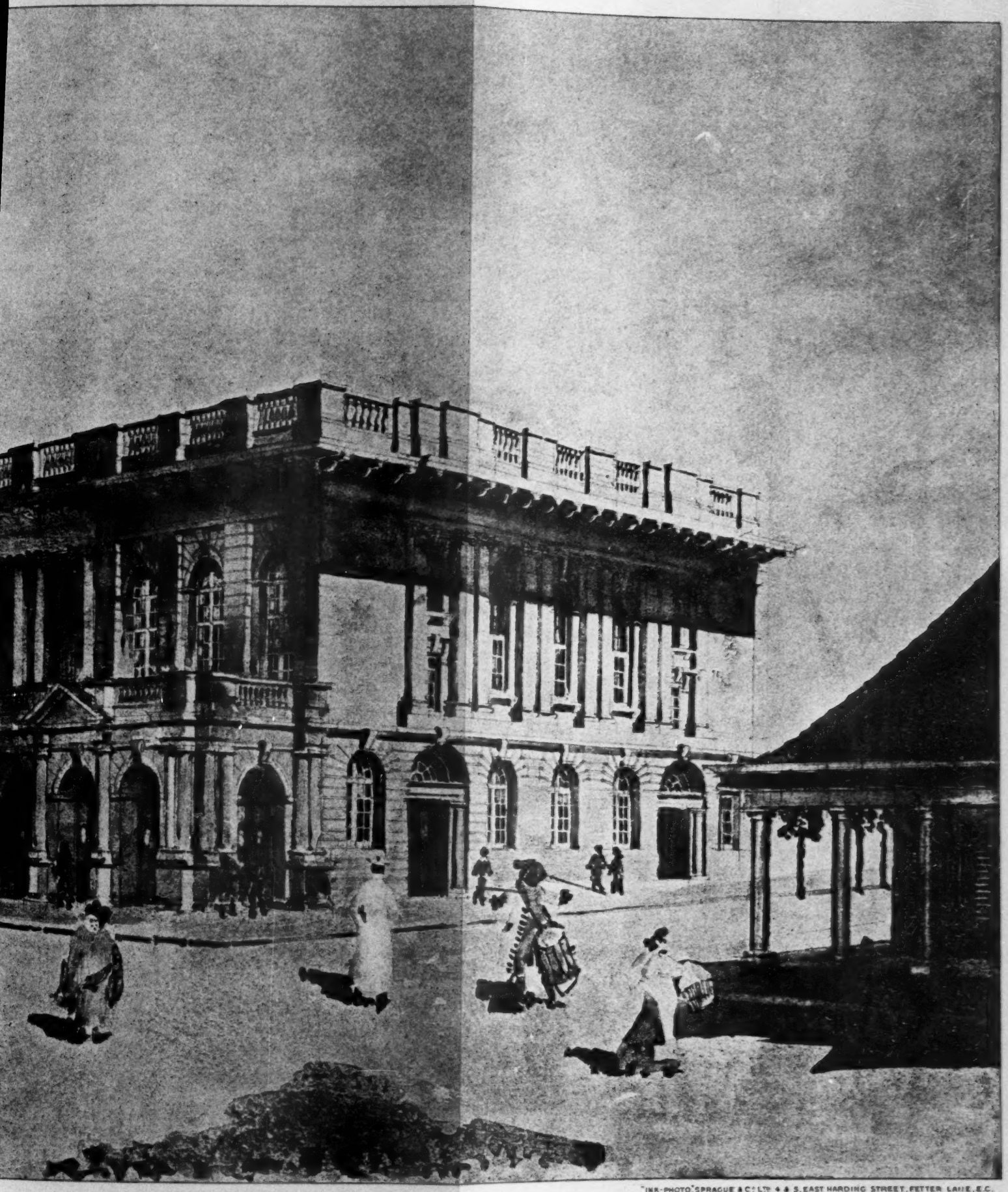
LONGITUDINAL SECTION

PHOTO LITHO. SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

RECOMMENDED BY THE ASSESSORS.—MR. G. GILBERT SCOTT, ARCHITECT.

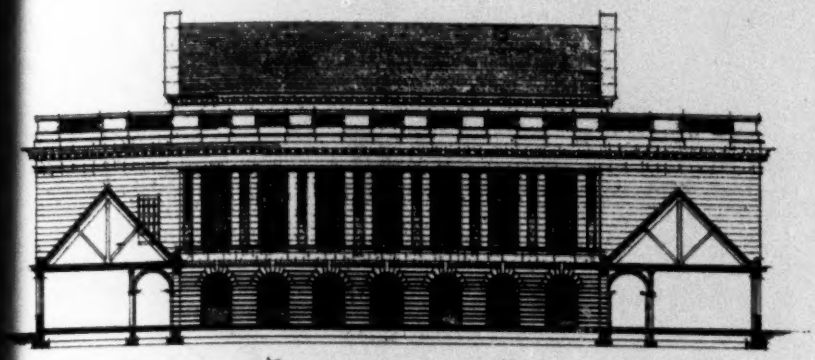


CAPE UNIVERSITY COMPETITION: SEC

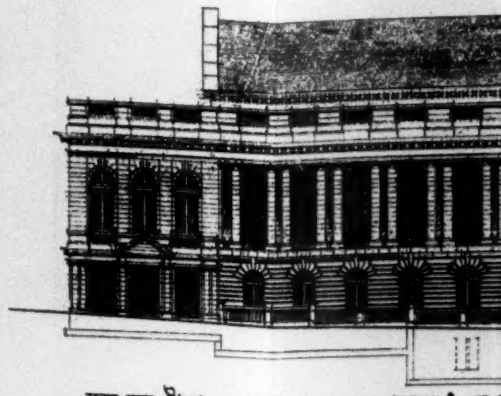


"INK-PHOTO," SPRAGUE & Co., LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

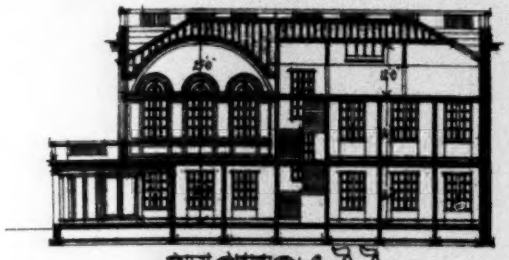
N: SECOND PREMIATED DESIGN.—By Mr. J. Edwin Forbes.



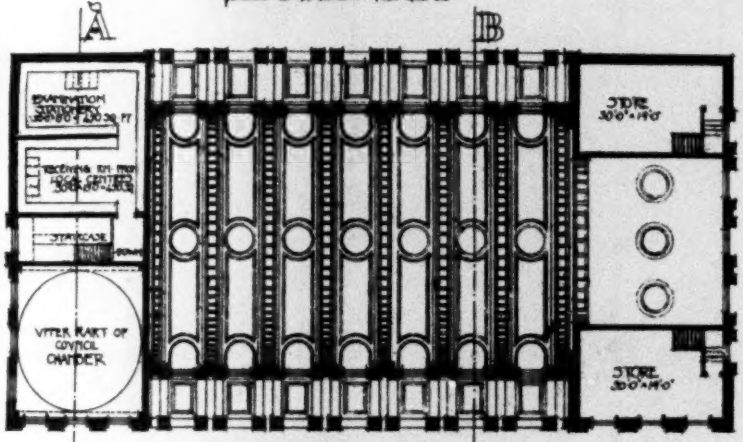
ELEVATION TO QUAD



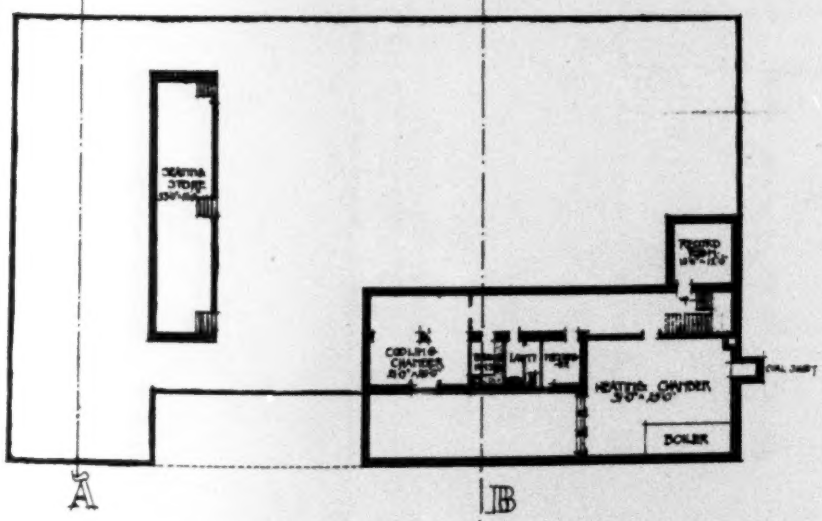
ELEVATION TO QUEEN V



SECTION AA



SECOND FLOOR



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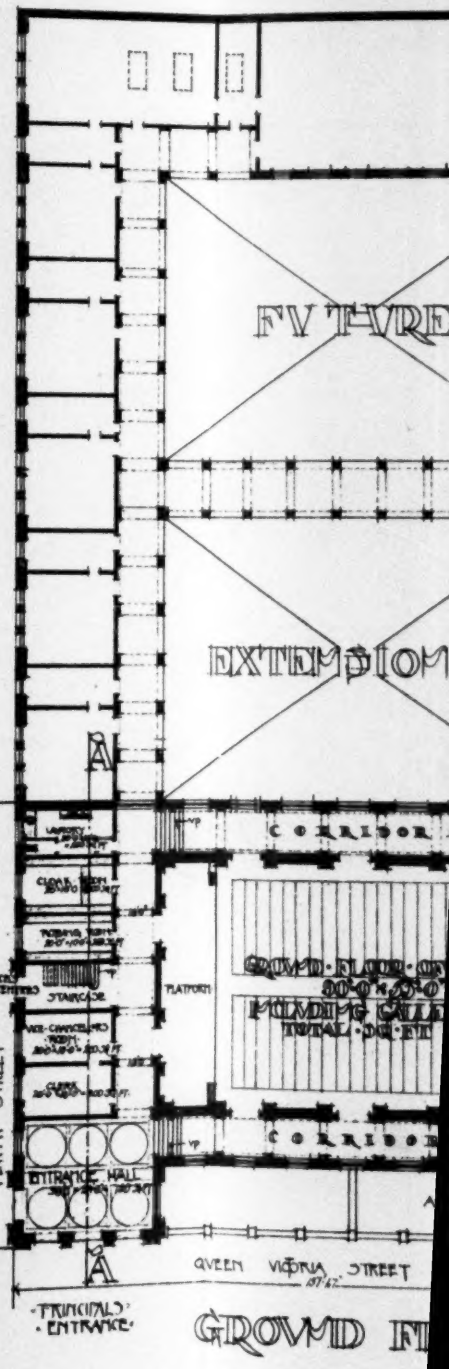

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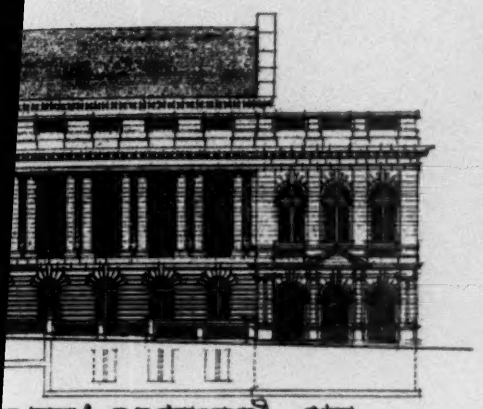

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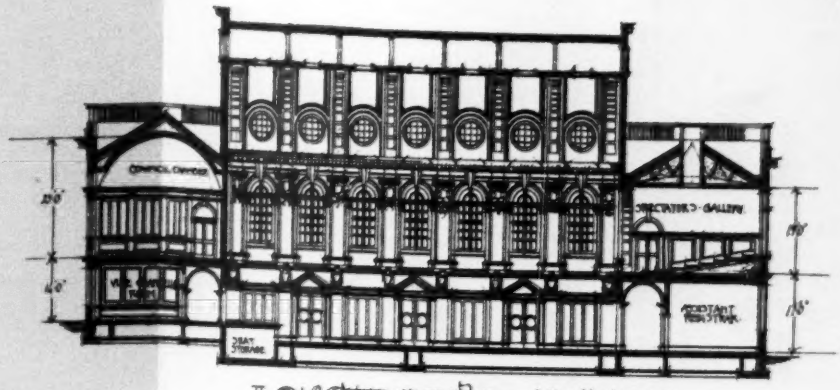
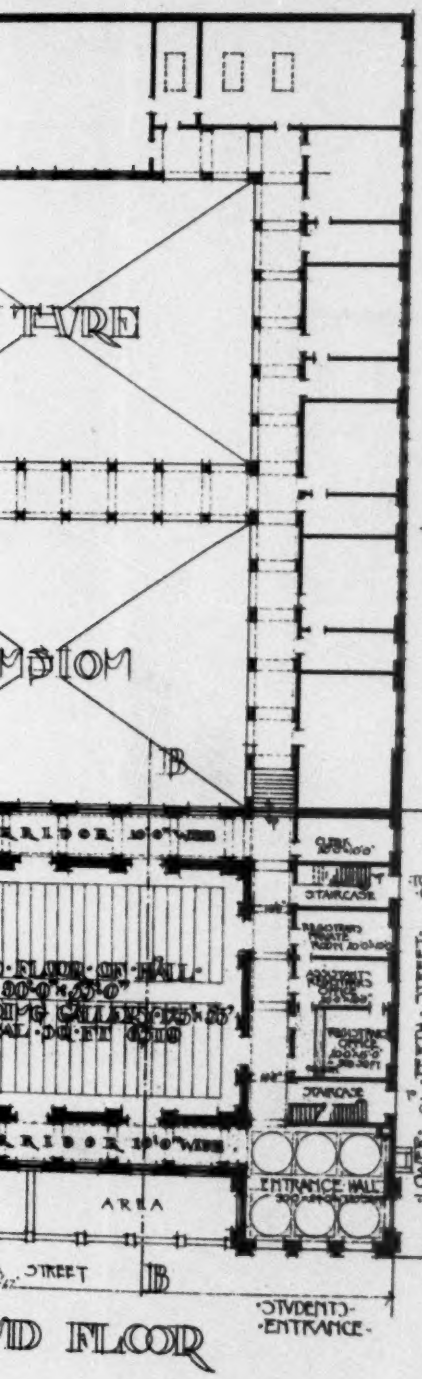


LONGITUDINAL SECTION



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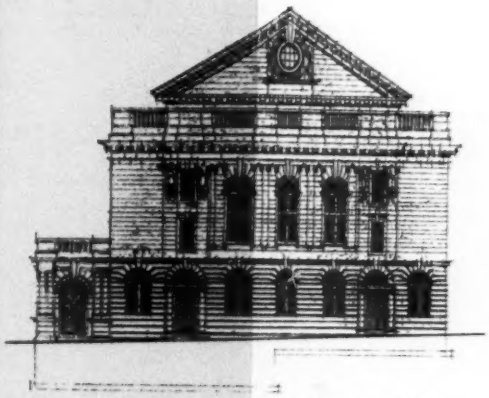

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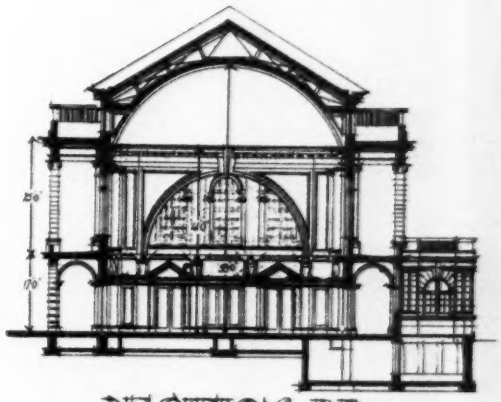

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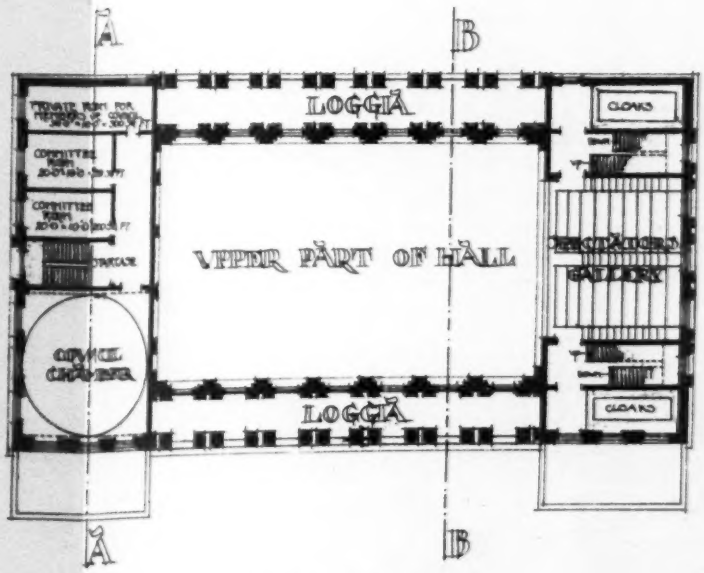

FIRST FLOOR

PHOTO-LITHO SPRAGUE & Co LTD 4 & 5, EASY HARDING STREET, FETTER LANE, E.C.

SECOND PREMIATED DESIGN.—BY MR. J. EDWIN FORBES.

casement windows opening inwards, which is stated to be, and from its design ought to be, perfectly efficacious in keeping out even driving rain. In regard to the mouldings, the firm state that they make every effort, with the best machinery, to produce perfectly sharp and clean-cut mouldings, so as to obviate any necessity for hand finish afterwards.

SEWER VENTILATION.*

If there is one subject more than another which the Association is entitled to an apology for having imposed upon it, it is that of sewer ventilation. So much has been said and written about it, and so often, that the author is afraid the subject must have become almost as nauseous as the odours which give rise to it, but that our district secretary assured the author that a paper upon it would be acceptable to the Association, he would have hesitated before submitting it. At the same time, it can scarcely be said that the problem, which has sorely vexed sanitary engineers for the past forty years, is as yet satisfactorily solved. No more conclusive evidence of this could be needed than the paper on the subject recently read by Dr. Dearden at the Manchester Congress of the Sanitary Institute. The author is not quite sure what conclusion was intended to be drawn from that paper, but it seemed to him that the view held by the doctor was, that sewer ventilation by the old method of surface gratings was bad enough, but that every improvement upon it was worse. If that is so, then certainly we have not reached the end of the controversy.

The purpose of the author is to submit to the Association for discussion a certain direct issue, viz., whether, having regard to all the circumstances, the object sought to be attained in the ventilation of sewers is best secured by the ingress and egress of as *great* or as *little* a volume of air as possible, consistently, in both cases, with avoiding any appreciable pressure being put upon the water-seals of the private drains. Before, however, discussing that point there is the preliminary question to consider, viz., whether it is necessary to ventilate sewers at all.

We all know there are towns where no special provision at all is made for the ventilation of the sewers, yet the inhabitants of those towns survive and apparently present as clean a bill of health as towns in which the ventilation of the sewers is amply provided for. Still it is obvious that the foul air of the sewers, to say nothing of the gases which arise from the decomposition of the sewage, must be displaced and driven somewhere by every increase of volume of the liquid flowing therein, apart from other causes, and to say the least, it does not seem satisfactory not to know where such air is driven. If the sewer is constructed with watertight joints and impervious materials, it must be sent through the water-seals of the drains connected therewith, which are provided for the express purpose of preventing the passage of such air. A modern well-made water-proof needs ventilating, and it is poor consolation to the man who wears a badly made or a too well worn coat, to point out to him the advantage it possesses of needing no other kind of ventilation.

As the author assumes that it is the effort of every engineer to construct his sewers with impervious material and watertight joints, he will, therefore, also assume that provision for the ventilation of sewers is necessary. The author was first troubled with this question some twenty years ago when he took charge of a district in which an entirely new system of sewers had just been laid. A loan had been sanctioned by the Local Government Board for the scheme, which was designed upon the lines advocated and insisted upon by the Board. For a number of years previously, the question had been a burning one, owing to the frequent complaints received by local authorities all over the country of the foul odours arising from the surface gratings which were then almost universally adopted. The late Sir R. Rawlinson was at that time Chief Engineering Adviser to the Local Government Board, and he advised that the remedy was to be found in increasing the number of ventilators, provided the sewers were properly constructed, with sufficient falls, and were periodically flushed so as to prevent the accumulation of deposit in them. The scheme to which the author has referred was designed by the late Mr. Pritchard, a Past President of the Association, and well fulfilled all the conditions laid down by Sir R. Rawlinson as necessary to ensure freedom from foul odours issuing from the ventilating gratings. The sewers were all constructed of stoneware pipes with good gradients, and were flushed weekly.

The work of construction was superintended by a present member of the Association, whose name would be a sufficient guarantee that it was thoroughly well executed. Indeed, the author can scarcely conceive a scheme better adapted to put the method advocated by the Local Government Board upon its trial than the one alluded to, and that is his reason for adverting to it. In less than twelve months complaints of the foul smells from some of the ventilators came in. They were staved off for a time in one way or another, but the more persistent persons insisted upon something being done. It was in vain they were told that if the foul air did not escape outside the house they might be poisoned by it inside. The only alternative was to close the ventilators complained of and erect tall shafts instead. There was a general unwillingness amongst the residents to allow ventilating shafts to be fixed against their own houses, but an equally general approval to their being placed against somebody else's. The difficulty was usually got over by refusing to close the surface gratings complained of, and so coercing the person who suffered most from the nuisance into consenting to the erection of a shaft somewhere upon his premises. This course always seemed to the author one of doubtful morality for a public body to follow. A public authority creates a nuisance and refuses to abate it unless the person who suffers consents to what he believes, and what will generally be admitted, is an injury to his property. The proceeding is all the more curious as being taken by a *Sanitary* Authority. It seemed evident that this system of erecting shafts in place of surface gratings in the road was inapplicable as a general system, because not only were they costly, having in some instances to carry the drain considerable distances from the sewer to the shaft, but they had practically all so be erected upon private property, for which the Authority was given no statutory powers. But upon these objections came the fatal one that they failed in their purpose to put an end to the complaints. One lady against whose house a shaft had, with her consent, been erected, complained that the foul odours which had previously pervaded her drawing-room now invaded her bedroom. The author ascertained that the complaint was well founded. Some of the chimneys were subject to down draughts, which carried the sewer air from the ventilators into the rooms. The ventilating shaft had consequently to be removed to another spot. It has been the author's unfortunate experience to have to remove others for similar reasons. In recent years the adoption of tall shafts has greatly increased, and as the difficulty of obtaining consents to erect them on private property became felt, shafts were introduced, designed to stand in streets independently of support other than that secured at their bases. To ventilate a system of sewers throughout a town by means of such shafts—which to be free from nuisance and danger, if indeed that be possible, must be carried a very considerable height above the highest windows in the neighbourhood—would indicate on the part of the engineer a state of despair of finding any other solution of the difficulty. The obstruction already caused by gas and electric lamp columns, and still worse by tramway trolley wire poles, feeder boxes, and numerous other things is bad enough, but the intrusion of these tall shafts constantly proclaiming the discharge of foul air—notwithstanding the mask of decoration sometimes worn by them—even though the proclamation may not always be true, is a thing which no person would desire to see. The failure of the ventilating shafts to stop the complaints led the author to investigate the conditions under which the surface gratings became offensive, the sewerage system of the district in question lending itself admirably for the purpose. Sometimes a grating would be offensive one minute, and the next would not give forth a trace of smell. He rigged up a small anemometer, or rather anemoscope, constructed of cardboard, and took a large number of observations. The instrument did not *measure* the currents flowing, but merely indicated the direction and comparative velocity of flow. It soon became apparent from the observations that the air currents in the sewers were extremely erratic. A violent current would be rushing *out* of a ventilator one minute, the next it would be perfectly still, and the next the air would be passing as rapidly in the opposite direction *into* the sewer. No variations of temperature, barometric pressure, or change of volume of sewage could account for these extraordinary evolutions, and the author concluded that by far the most important factor in producing and determining these air movements was the wind. There seemed no difficulty in attributing to the wind these rapid changes. The wind blowing in a certain direction over the surface of the road might (depending upon the inclination of the road) be acting exhaustively upon a ventilator, inducing a current outwards; the wind passing over the same ventilator in another direction might press inwards, and therefore reverse the direction of the current. This change of current in a single ventilator would in all probability affect a dozen others in its neighbourhood.

In pursuing his investigations with the anemoscope one fact strongly impressed the author. Of course, when the air was flowing inwards there was an entire absence of smell: when the air was still there was no smell; when the instrument indicated a rapid current outwards then there was inevitably accompanying it a most unpleasant odour; but the one tact which was particularly noticed was, that if the air were moving outwards from the ventilator at a slow rate no smell was observed, diffusion with the external air apparently rendering it quite imperceptible. It seemed possible that this circumstance might be taken advantage of to solve this very vexed question.

Not long after the author's appointment as chief engineering assistant at Worcester, the sewer ventilation question became acute owing to the number and strength of complaints in various parts of the city. Sewer gas destructors —with which doubtless all present are familiar —were tried. They were of course very costly, but the first consideration was the health of the citizens. The gas furnaces consumed from 8*l*. to 10*l*. worth of gas per annum, so that the cost capitalised amounted to something like 300*l*. for each destructor; and as the sectional area of the air passage was comparatively small, it was evident that they would have to be erected at relatively short distances apart to afford a proper relief to the sewer when any rapid increase of volume occurred. The apparent object of this appliance was to set up a rapid circulation of air in the sewer towards itself, and then destroy by heat any dangerous germs and offensive particles of matter the sewer air might contain. The current of air induced, however, was found to be so feeble that when the gas was burning it failed to ensure an inward current of air at the next surface ventilator, which was situated within 70 yds. of the sewer gas destructor. Possibly it had the effect of destroying any germs in the air when the gas was burning, but it so frequently blew out by the superior draught downwards into the sewer, that the inhabitants of the neighbourhood had to consider which was the less objectionable, coal gas or sewer gas. I need scarcely say that the number of these sewer gas destructors was not multiplied.

The most popular practice at present in vogue in seeking to prevent the foul odours is that of endeavouring to obtain as great and as rapid a circulation of air in the sewers as possible; and endless methods of extracting the air from sewers or forcing air into them have been devised for the purpose, and an immense amount of time and labour spent in elaborate observations for ascertaining which invention most successfully accomplishes that object. This has always struck the author as an extraordinary practice ever since he ascertained (what might naturally have been expected) that the more rapid the current issuing from the ventilator the more foul the smell. It seemed to him about as reasonable to pump the foul liquid from the sewer for the purpose of watering the streets, as to send forth at certain points into the atmosphere on which our lives and health depend, as much as possible of the

* A paper read by Mr. T. Caink, A.M.Inst.C.E., City Engineer, Worcester, before the Incorporated Association of Municipal and County Engineers, at the Midland District Meeting, held at Birmingham, January 31.

foul and poisonous air of the sewers. Such a practice requires a good deal of justifying.

It will be gathered from the foregoing remarks that the author believes that the solution of this problem lies, so far as the prevention of nuisance is concerned, in checking the rapid discharge of sewer air from the ventilators, or in other words, in transmitting as little air as possible from the sewers, consistently with affording such relief as will prevent the pressure therein rising appreciably above that of the atmosphere.

In describing the appliance by which he has endeavoured to attain this object, the author desires to state that he has no pecuniary interest in it—nothing more than a paternal affection. He did patent the arrangement some years ago, but as he was unsuccessful in persuading anybody that it was of any use, he allowed the patent to lapse. However, he was not one of those who think that a meeting of this Association is not the place to introduce methods or appliances which are subject to patent rights. If a thing is useful to members of the Association, the fact of its being patented cannot make it less useful, and that members should be deprived of the benefit which information about it may impart, because an individual may derive special benefit, does not seem to him either reasonable or desirable. The object sought to be attained in the author's invention was to prevent any appreciable rise in the air-pressure of the sewer, and yet maintain a very slow movement of the sewer air in its exit from the ventilator. To do this it was obviously necessary to distribute the outflow as evenly as possible over all the ventilators in the neighbourhood, and exclude any active interference on the part of the wind. This was accomplished by causing the air to pass through a layer of cotton-wool. It allowed a gentle ingress and gentle egress to the air as the conditions within the sewer required. The effect of the wind was practically excluded. This material also possessed the property of *filtering* the air in its passage through it. Hence, if any injurious micro-organisms were present in the sewer air, it is certainly reasonable to assume that the chance of their being transmitted into the atmosphere would be immensely diminished by the layer of cotton-wool, and rendered still less probable by the checking of the rapid air currents along the sewers, which carry away from their sides the dry particles of matter to which the micro-organisms in all probability attach themselves. The arrangement first consisted of a diaphragm of the material, about 3 in. thick, contained in a zinc cylinder and supported by a wire netting. A number of them were placed in a length of 18-in. sewer which had been specially complained of.

In order to ascertain whether these ventilators afforded a proper relief to the sewer, during rapid increase in the volume of liquid therein, observations were taken by means of a King's gas-pressure gauge, which was capable of measuring pressures down to $\frac{1}{10}$ of an inch of water. A flushing tank containing about 1,000 gallons was repeatedly discharged into the sewer, and in no instance did the gauge indicate a pressure exceeding $\frac{1}{10}$ of an inch of water, and that only momentary. These ventilators remained in that length of sewer throughout the summer months, and so far as curing the cause of complaints was concerned, were perfectly successful. The author was then anxious to see how they would behave in the winter, when the external temperature was much below that of the sewer. When winter came he was not much surprised find that the discs of cotton-wool became literally soddened and useless. They either shrank so small as to allow the air to pass freely round them, or they filled up the space with a practically air-tight plug. Such a condition would often be produced in a single night if the air were cold and frosty. The problem was then reduced to finding a means whereby the wool might be kept in a dry condition. It was not difficult to protect it from rain or surface water; the difficulty lay in preventing the condensation upon it of the moisture, with which the sewer air was often saturated, and that again resolved itself into devising a means whereby the temperature of the cotton wool should always be kept above that of the sewer air, because, it is scarcely needful to add, that condensation only takes place when the temperature of the object in contact with the moist air is lower than that of the air itself.

This object might have been attained by placing a gas jet beneath the disc burning a small flame of about 1 cubic foot per hour. The cost of the gas would have amounted to about 1*l.* per annum for each ventilator. But the author met the difficulty by designing a ventilator—which could take the place of the ordinary street surface grating—whereby the heat contained in the sewer air was made to raise the temperature of the cotton-wool above that of the air which warmed it. It consists of a cylindrical casting having ribs projecting inwards for the purpose of increasing the surface of contact for absorption of heat; the lower part of this casting rests upon the ventilating shaft which rises from the sewer. The top of the casting carries the surface grating. There is a separate casting which is kept thermally insulated from the outer one. The lower part of this casting is also ribbed for the purpose of securing the maximum abstraction of heat; the upper part of it consists of a cylinder enclosing the layer of cotton-wool, which is supported by a grid under which is an arrangement of gills forming part of the casting. In the centre of the gills a cup is formed which if desired can be used to contain a disinfectant or germicide. The author has never made use of it, not believing it necessary. Upon the top of the inner cylinder rests a conical glass cover to protect the wool from water getting in from the surface. When air passes outwards from the sewer to the external atmosphere, it first comes into contact with the inner casting which extends a short distance down the shaft, and when the temperature of the atmosphere is below that of the sewer air, the cold metal lowers the temperature of the latter, causing it to part with some of its moisture, which condenses upon the metal. The heat abstracted from the air is conducted upwards by the metal, raising the temperature of the cylinder surrounding the cotton-wool, and consequently by radiation from the inner surface of the cylinder, raising the temperature of the cotton wool also, the outer surface of the cylinder being surrounded by non-conducting material. The air, after playing round the lower part of the inner casting, passes into the annular space between it and the outer ribbed casting which is in contact with the cold earth, and at the surface of the ground with the external atmosphere; this cold metal lowers still further the temperature of the sewer air, depriving it still more of its moisture, which trickles down into the sewer. The air now, although containing much less moisture than before, is still saturated owing to its temperature being correspondingly lowered. It then leaves the outer casting and returns to the upper part of the inner one, passing through the openings between, and coming into contact with the gills before mentioned, whereby its temperature is somewhat raised and consequently rendered dry; it then passes through the cotton-wool which has been warmed by conduction and radiation above the dew-point of the sewer air passing through it, and escapes under the glass cover to the grating at the surface.

The question is sometimes asked, "How can you tell that any air at all from the sewer passes through the cotton wool?" The question would not be put by a person who had experimented with the material in that way, but the evidence of it is afforded by the deposit of moisture which often takes place upon the underside of the glass cover, while the upper side remains perfectly dry. In the early apparatus the author made this cover was constructed of zinc, and the deposited moisture used to fall upon the layer of cotton wool. He was aware that glass possesses a large capillary attraction for water: he therefore designed a cover of that material, having such an angle of slope as would cause the water to trickle down its under surface into the annular cup forming the seal. This seal has generally been made with sand, and this answers where much top-water is not allowed to rush in, but in some instances it may be necessary to deepen the annular cup and provide a water or glycerine seal. The practice of the author is to change the filtering material every three months. The cost, both of the material and man's time, is trifling. The cotton wool is seldom any the worse for being in, except from dust, spiders' webs, and the like. It is sometimes damp, never wet. A slight dampness does not interfere with the transmission of air; but it would undoubtedly add to its efficiency as a filter of the organisms, the microscopic globules of water more effectively arresting and retaining any minute particles of solid matter, whether dead or living, than perfectly dry fibres. The apparatus altogether is quite successful in attaining the object desired; at the same time it may not be the best possible arrangement that can be devised, neither may cotton wool be the best material to use, and other members of the Association will probably improve on both; nevertheless, as it is, the author is persuaded that it renders unnecessary the many costly and ugly devices adopted for getting rid of the nuisance and danger to health arising from the ventilation of sewers, whether they be tall shafts, water sprays, gas furnaces, chemical deodorants, air fans, or the numerous other arrangements that have been employed.

Sir Charles Cameron, the Medical Officer of Health for Dublin, has designed a ventilator in which the principles above advocated have been applied, but in lieu of cotton-wool he employs cylinders made of a porous material, consisting of a mixture of plaster-of-Paris and clay. He has stated that they succeed in their purpose, and that the pressure of the air in the sewers never rises appreciably above that of the atmosphere. The author has had no experience of them, and cannot therefore speak from any personal knowledge of their working. Objections to the principle of preventing a free circulation of air within the sewers have been raised upon the ground that men have sometimes to enter the sewers for cleansing, and that, therefore, a certain degree of purity of the air is needful. But special conditions should be met by special provisions. It is an easy matter to give a free circulation for a few hours to a particular length of sewer for the purpose mentioned. When boiler flues need cleaning it is first necessary to cool them, but nobody thinks *that* a reason why flues should not be used for conveying air at a temperature which a man could not live in. It will probably be suggested, and, the author thinks, rightly, that the principle which he has advocated takes us back to the idea which originally underlay the ventilation of sewers, viz., merely the providing of safety-valves for preventing pressure upon the water traps of the connected drains, rather than the *purification*, by dilution and circulation, of the air within the sewers; a process which seems to have been suggested in the hope of being able to render the sewer air sufficiently innocuous to allow it to escape freely into the atmosphere, even in densely populated streets, without being offensive. That hope has not been realised, and the question appears to the author to resolve itself into whether, if the former principle can be successfully adopted, it is any longer necessary to continue what appears to be a hopeless search for a method of successfully accomplishing the latter.

To refer very briefly to the subject of the ventilation of house drains. There has been of late years a manifest disposition to mix this question with that of the ventilation of sewers, and consider them together as a single problem. The author regards them as entirely distinct. He would separate the house drain from the sewer in the most absolute manner practicable, and, having regard to the different conditions to which they are subject, would not necessarily apply the same principle of ventilation to both. There are engineers who advocate the employment of private drains as ducts for the ventilation of the public sewers. That principle is opposed to the maxim propounded by medical officers, "make each house drain perfect, and let the public authority deal with the public sewers." It is generally admitted that the maxim is good in theory, but it has been objected that it shifts the responsibility from the medical officer to the surveyor. Supposing that were the case. "Is the surveyor unequal to the responsibility?" Is he prepared to suggest that the medical officer is better fitted to solve the sewer ventilation problem than he? But the responsibility of the public sewers already rests upon the surveyor, and has, therefore, no need to be shifted upon him, and the author is convinced he has no desire to transfer it in any respect either to the medical officer or the private individual. A potent reason why private drains should not be used to ventilate public sewers is, that it is almost universally recognised that the most successful known method of preventing the spread of infectious diseases is by isolation. While that doctrine is held, the necessity for the disconnexion of house drains from the sewers must be admitted also. The author can scarcely conceive a stronger case for isolation than the separation of the dwelling-house

from the sewerage system. Sewers are recipients of every description of filth and the conveyors of the fæces from persons suffering from every form of disease. Hence the more the transmission of emanations therefrom into the vicinity of dwellings is rendered impossible, the safer for the occupants of those dwellings. Whether the usual disconnecting syphon is the best method of effecting the separation is another matter. They have often been objected to on the ground that they retain foul matter which may give off offensive odours, but efficient flushing may always be counted upon to clear a properly designed and dimensioned trap of any substance that ought to be allowed to find its way into drains.

With regard to the method of ventilating private drains, the author agrees with the general provisions of the model by-laws, with perhaps the sole exception that he would reverse the relative positions of the opening near the surface of the ground and the tall shaft, in order that the current of air should follow the flow of water, which it will invariably do if the latter is running rapidly, whatever relative levels the surface opening and tall shaft may occupy. By the arrangement laid down in the model by-laws the flow of the liquid opposes the current of air; by the alternative arrangement suggested it assists it. The author, however, would prefer to dispense with the surface opening entirely on the private drain, and construct tall shafts for both inlet and outlet. The difference in the conditions obtaining in an ordinary house drain from those of the sewers is, that in the former the discharge is limited to a single house, is spasmodic, usually rapid, occurs only at intervals more or less long, and the matter flowing along it is fresh and undecomposed. In a sewer not one of these conditions can be counted upon; on the contrary, more generally every one is reversed. In the case of a large establishment such as an asylum or hospital, the main drain becomes practically a sewer, and should be treated as such, both as regards disconnexion of house drains and ventilation, and also flushing.

Correspondence.

LIVERPOOL CATHEDRAL.

SIR,—Will you permit me to make a few observations bearing upon the very able letter of Mr. Barry which appears in your issue to-day?

From conversations with some of the best people in the diocese, I am quite sure the majority of Liverpudlians take Mr. Barry's view, and are keenly disappointed at the absence in the chosen design of a great and noble tower dominating the cathedral, and rising to a great height, which could be seen for miles round, and would be a prominent object all over Liverpool and the Mersey.

As the "man in the street," I cannot venture for one moment to offer any suggestions or presume to criticise Mr. Scott's design, more especially as Mr. Scott has consented to be associated with Mr. Bodley in this great work, and between these two eminent architects no doubt the objections and defects, so clearly and yet so fairly dealt with in your criticism of the design, may be remedied or avoided; but the question has been mooted, seeing that Mr. Scott's north elevation is really very fine and massive, could he not be induced to elaborate or vary it, so as to make his north tower the principal tower or spire, and carry it higher than the other two towers—say, to an altitude of 350 ft.—thus dominating the whole pile and giving a much more impressive and noble aspect to the north front of the cathedral, which is the portion first seen, as approached from the city, and offers the best perspective view as well as the finest approach through the cloister court?

In response to so earnest and widespread a desire, both on the part of subscribers and the community generally, it is to be hoped the Cathedral Committee will take this into consideration.

NIL DESPERANDUM.

Liverpool, May 30.

DEANSGATE, MANCHESTER.—A new building for the Band of Hope and Temperance Union is about to be erected in Deansgate, Manchester. The elevation is to be carried out in brick and buff terra-cotta. The Union will occupy half the basement, half the ground floor, and half the first floor. In addition, there will be a large saloon-roofed hall, covering practically the whole of the third floor, in which the Union will hold its meetings. There is a board-room for fifty persons on the first floor. The heating and ventilating are having careful attention. The architects for the work are Messrs. Chas. Heathcote & Sons, of Manchester, who obtained the first premium in competition.

BOOKS RECEIVED.

PROPORTION AND MOVEMENT OF SLIDE VALVES. By W. D. Wansborough. (The Technical Publishing Co. 4s. 6d.)

THE GEOLOGY OF THE COUNTRY NEAR LEICESTER (No. 156 of Memoirs of the Geological Survey of England and Wales). By C. Fox-Strangeways, F.G.S. (E. Stanford. 3s.)

GENERAL BUILDING NEWS.

PRESBYTERIAN CHURCH, WEST STANLEY.—This church, which has been in course of erection for some time, is situated on the top of the hill at the east end of West Stanley as it is approached from Shield-row. The buildings are from the designs and have been erected under the superintendence of Messrs. Badenoch & Bruce, architects, Newcastle-on-Tyne; and comprise—church to seat 350, hall seated for 230, with vestry, class and session-rooms, lavatories, &c. The walls are of local stone, with hammer-dressed facing and chiselled dressings. The church is planned with wide nave and no aisles, a vestibule porch at the entrance, with tower and spire. The hall and classrooms are at the east end and the hall gable abuts on the main road, with porch at one side giving access to same and answering as exit to church. The wrought timber work throughout is of pitch pine stained, and the floors are in wood blocks laid on concrete by Messrs. Roger Lowe, Ltd., of Farnworth, Bolton. The contractors are:—Wm. Johnson, White-le-Head, mason; John Anderson, joiner; the pews and pulpit by Mr. John Jackson; Messrs. France & Sons, slaters; Matthew Charlton, plumber; Richard Frankland, Blackhill, plasterer; Adam Robertson & Sons, painters and glaziers; and Messrs. Emley & Sons, heating engineers, all of Newcastle except the mason and plasterer. The lead glazing has been executed by Messrs. Atkinson Brothers, Newcastle-on-Tyne.

WESLEYAN CHURCH, NOTTINGHAM.—The new Wesleyan church on St. Ann's Well-road, Nottingham, which has been erected at a cost of about 5,000*l.*, was opened on the 21st ult. The church takes the place of an iron structure. The materials employed are red bricks, with stone dressings, and there is a tower rising to a height of about 70 ft. The dimensions of the chapel are 58 ft. by 24 ft., and a gallery runs round three sides, accommodation being provided for about 600 people. A number of classrooms have been provided on the eastern side, and at the rear is a room, suitable for meetings, and the minister's vestry. Access to the choir, vestry, and organ chamber is obtainable from Martin-street. The internal woodwork is of pitch-pine with the exception of that about the rostrum, which is of oak, and the lighting is by electricity. Mr. A. E. Lambert was the architect, and the building was carried out by Mr. William Maule, of Nottingham.

EPISCOPAL CHURCH, KELVINSIDE, GLASGOW.—A new church is to be erected for the St. Bride's congregation. The new church will have chairs for 750, and will consist of nave, aisles, and chancel. The entire length of the building will be 130 ft. by 70 ft. wide, and the height from floor to apex of roof 56 ft., while the spire will rise to 100 ft. The chancel is 36 ft. long by 29 ft., and is divided from the nave by a rood screen of carved oak; while a similar screen marks off the chancel from a side chapel on the south side, under which an arched mortuary chapel has been placed. The nave is 102 ft. long by 26 ft. wide, while the aisles on each side are 14 ft. wide. The aisles are separated from the nave by arcades of five arches, supported on moulded and clustered columns, the arches rising to a height of 27 ft. The building is entirely of red stone, outside and in, plaster-work being debarred. The architect of the building is Mr. G. F. Bodley, R.A. The cost will probably be close on 40,000*l.* The builders are Messrs. Stephens, Bastow, & Co., London and Bristol; and Mr. Arthur Barber is clerk of works.

WESLEYAN CHURCH, DUNSTON, NEAR NEWCASTLE.—Erected at a cost of about 2,000*l.*, the new Wesleyan church at Dunston was opened on the 24th ult. The new church, which is of red brick with stone facings, has been erected by Mr. William Hall, of Gateshead, from designs prepared by Messrs. Potts & Son, Sunderland. Seating accommodation is provided for about 400 people.

CHURCH, BALLYCLARE, IRELAND.—At Ballyclare on the 23rd ult. the corner stones of St. John's Church were laid. The new building will occupy the site of an iron church, which for some time past was used as a chapel-of-ease to Ballynure. The church, when completed, will accommodate some 220 worshippers. Mr. James Ferguson, of Belfast, is the architect, and the building contract is in the hands of Mr. W. J. Finlay, Larne.

PARISH CHURCH, CLAPHAM.—The new chancel and side chapel at Clapham parish church were consecrated recently. We gave an illustration of the additions in our issue for August 30, 1902. The work has been executed by Messrs. Garrett & Sons, of Balham and Tooting. The architect was Professor Beresford Pite.

CONSECRATION OF ST. THOMAS'S CHURCH, EAST KIRKBY, LINCOLNSHIRE.—The new church of St. Thomas, which has been erected in the district of East Kirkby, in the parish of Kirkby-in-Ashfield, was consecrated recently. The church consists of a nave 78 ft. long and 27 ft. wide, with aisles 4 ft. wide, a chancel 30 ft. long and 21 ft. wide, vestries for clergy and choir, with a heating chamber under the latter, and two bell turrets at the west end of the nave. The style is English Gothic of the early fifteenth century, and a low, broad treatment has been adopted throughout in the design of the fabric and all its details and fittings. Seating accommodation is provided for about 350 adults, the congregation being seated entirely in the nave. The principal entrance is at the west end, facing Low Moor-road, and an internal porch is formed by a screen and swing doors. The nave and aisles are divided into five bays, with octagonal Ancaster stone pillars, and moulded arches springing therefrom. The chancel arch is enriched by carved stone bosses. The stone windows are wide, with many mullions and traceried heads, those of the east and west windows being rich and full. The roofs are of pitch pine of open construction, and the floor under the seats is of wood blocks, and in the aisles, &c., of marble mosaic. The walls are of brick, plastered internally, and faced with local red brick externally, with Weldon stone dressings. The roofs are covered with red tiles, except the turret roofs, which are of lead. Messrs. Thompson & Sons, of Louth, Lincolnshire, were the contractors for the general work and the seating (of pitch pine stained brown) and the clergy and choir seats, of oak. The carving (both wood and stone) has been executed by Messrs. Tuttell & Son, of Lincoln. Messrs. J. Taylor & Co., of Loughborough, have made the bells. The wood block flooring is by Messrs. Nichols & Co., of London, and the mosaic paving by Messrs. Diespeker & Co., of London. The heating has been carried out by Mr. James Gray, of Chelsea. Messrs. Wadsworth Bros., of Manchester, have built the organ, for which they have also made the oak front from the architect's design, as have Messrs. Thompson & Sons the oak pulpit, and Mr. Hutchinson, of East Kirkby, the stone font (his gift). Messrs. Jones & Willis have executed the wrought iron and brass lectern, communion rail and gas fittings, and they have supplied the oak Glastonbury chairs for the sacrarium, the brass altar furniture, the mats and the carpet for the communion step. The dossal hangings are by Messrs. Morris & Co., who also supplied the materials for the altar frontal, which has been worked from the architect's designs (with some variation) by the ladies of the Southwell Diocesan Embroidery Guild, who have also worked the altar linen, &c. The boundary wall and gates have been carried out by Messrs. G Hopewell & Sons, of New Basford, Nottingham. Mr. B. Davies was the clerk of works. Mr. Louis Ambler, of London, was the architect.

CHURCH, SHEPHERD'S BUSH.—The first stone of the new Roman Catholic Church of the Holy Ghost and St. Stephen, Ashchurch-grove, Shepherd's Bush, was laid recently. The nave, which it is intended first to build, will be constructed to hold 400 persons, while the aisle, or aisles, if added later on, will accommodate 100, or 200, in addition. The architect is Canon Scoles, and Messrs. McManus are the builders. The church is to be Gothic.

BOARD SCHOOL, GARNDIFFAITH, MONMOUTHSHIRE.—A new mixed board school at Lower Garndiffaith was opened recently. The building, which, including the reserved site for a master's house, covers an area of 2 r. 12 p., occupies a position at the junction of the new road to Blaenavon with that to Upper Garndiffaith. The building is of one story, with basement for heating chamber, boys' cloakroom and boys' covered playground under north-east end, and has been erected to accommodate 400 children. The mixed school for 250 children is placed at the north-east end, and comprises central hall, 54 ft. 6 in. by 25 ft., and four classrooms, two being for forty children each, one for fifty, and one for sixty. A movable glazed screen across the central hall forms a fifth classroom for sixty children. The infants' school is placed at the south-west end of the building, and provides accommodation for 150 children—forty in the babies' room and 100 in the schoolroom. The latter is divided into two classrooms by means of a movable glazed screen. The heating is by low-pressure hot water. Open fireplaces are also provided. A room is provided for the teachers, with teachers' cloakroom, &c. The building is faced externally with red Cattybrook bricks set in cement, with Portland stone dressings. The amount of the contract was 5,500*l.*, and it has been carried out by Messrs. Morgan & Evans, of Pontnewynydd, from the designs of the architects, Messrs. Lansdowne & Griggs, of Newport. Mr. E. Branch acted as clerk of works.

INFANT SCHOOL, LANGWITH, NOTTINGHAM.—The new infant school at Whaley Thorns, built by the Bolsover School Board at a cost of 4,000*l.*, was opened on the 27th ult. The new school consists of five classrooms, each capable of holding sixty children, a central hall, teachers' rooms, cloakroom, &c. The contractors were Messrs. Cahil & Leverton, of Worksop, and the architect Mr. Priestwick.

SCHOOLS, DUDLEY.—At Dudley on the 20th ult. the foundation-stone was laid of an upper standard school, which is to cost over 16,300*l.* There will be separate departments for boys and girls, and the school will provide accommodation for nearly 500

children. The building will be arranged on the central hall principle, and will be of two stories, the ground floor being allocated to the boys, and the first floor to the girls. The central hall will extend the whole height of the building, and will be capable of enlargement by the removal of the partitions of the classrooms, which on the first floor will open out on to a balcony. There will be rooms for manual training, cookery, and laundry work, and for the instruction of deaf mutes. The architect is Mr. Allcock (Messrs. Barrowcliff & Allcock, Loughborough).

NEW KURSAAL, HARROGATE.—The new Harrogate Kursaal, which we illustrated and described in our issue for September 16, 1899, was opened on the 27th ult. The following are the contractors for the respective works:—Mason, Messrs. Abraham Graham & Son, Huddersfield; joiners, Messrs. Raworth & Allen, Harrogate; slater, Mr. W. Atkinson; plasterers, Messrs. Calverley & Fortune, Harrogate; plumber, Mr. C. Foster, Harrogate; painters, Messrs. Noddings & Sons, Harrogate; ironfounders, Messrs. Schofield & Hancock, Manchester; decorators, Messrs. Sparrow & Son, Nottingham; draperies, desks, and furniture, Messrs. A. Morrison & Co., James-street; settees, Mr. Slater, West Park. Mr. R. J. Beale, of Westminster, was the architect, his plans being accepted in competition. The consulting architect was Mr. Frank Matcham, London; and the clerk of works, Mr. A. E. Marsh, Wakefield.

WORKING-CLASS DWELLINGS, DULWICH.—On the 27th ult., Mr. Goddard Clarke, L.C.C., Mayor of Camberwell, laid the foundation-stone of the new workmen's houses which are situated in Grovevale, East Dulwich, and have been built from the plans of Mr. W. Oxtoby, the Borough Engineer. Of the eighty-five houses which are being built, eighty-one will be divided into two tenements on the maisonette principle, and four will be single-tenement houses. Accommodation will be provided for 166 families.

HOTEL, DOVERCOURT.—A new hotel has been erected at Dovercourt upon a site on the Marine Parade. The hotel, which was designed by Mr. G. S. Sherrin, of London, is in the Queen Anne style, and is situated at the corner of the Marine Parade and Kingsway, which leads to Dovercourt Railway Station. It stands on about three-quarters of an acre of ground, and is surrounded by terraces and gardens. The entrance for guests is from the Marine Parade into a lounge, which leads into the chief apartment on the ground floor, and out of which a staircase gives access to the bedrooms, forty in number. A feature of the building is the Alexandra Hall, which is a bijou theatre, capable of seating over 500 people, whilst, in addition to the dining, drawing, and billiard-rooms on the ground floor, there is a restaurant, which can be entered both from within the hotel and from the street entrance to the hall.

CLUB, BLACKBURN.—Bishop Thornton, D.D., opened the Parish Church Men's Club, Freckleton-street, Blackburn, recently. The premises were formerly known as the Vicarage coach-house and stables, but the building has been transformed into club quarters, from plans prepared by Messrs. Simpson & Duckworth, by Mr. Sharples, the contractor.

INFIRMARY, WEST CORNWALL.—A special general meeting of the subscribers to the West Cornwall Infirmary and Dispensary was held recently to consider the Report of the Committee as regards the new building scheme. Plans were submitted which had been prepared by Mr. O. Caldwell, after consultation with the medical officers, for the extension of the present building, and after discussion it was decided to accept these, subject to modification, and to purchase a quarter of an acre of land to the north of the infirmary from Mr. T. R. Bolitho for 200*l.* for this purpose. The total cost of the additions and alterations was estimated at about 4,000*l.*

PAVILION, MAGDALEN COLLEGE, OXFORD.—A pavilion has just been erected on the new ground on the Marston-road, for the consolidated clubs of Magdalen College. On the ground floor is a room 40 ft. in length, and accommodation for the groundman and his staff, and on the first floor there are a dining-room, a couple of dressing-rooms, and a similar number of bathrooms, one for the use of members of the college and the other for visitors. The dining-room leads out on to a verandah, supported by four pillars, which adorn the entrance to the pavilion. Mr. R. P. Jones, M.A., of Magdalen College, was the architect, the builder was Mr. J. A. Hunt, of Hertfordshire.

HOUSING SCHEME, STEPNEY.—The Housing Committee of the Stepney Borough Council reported on the 26th ult. that the Edward Mann-buildings are practically ready for opening. These tenements have been built by the Stepney Council on the Queen Catherine-court area, Limehouse, from plans by the Borough Engineer, Mr. Jameson, at a cost of some 6,000*l.* The Council have now in hand the erection of tenements on the King John-court area.

BUILDING IN NEWCASTLE.—The Newcastle *Journal* states that the contract has been signed for one of the largest building enterprises in Newcastle. The premises in question will extend from the Empress Hotel, at the head of the Side, to the corner of Dean-street, and will be continued up Dean-street, and make another turn facing St. Nicholas' Churchyard. The building will thus be triangular in shape, and the total frontage will be about 660 ft., made up of 300 ft. frontage in the Side, 160 ft. in Dean-street, and nearly 200 ft. in St. Nicholas' Churchyard. The cost of the structure will be about 120,000*l.*, and the contract has been secured by Mr. Stephen Easten. The joint architects are Messrs. Oliver, Leeson, & Wood, and Messrs. Marshall & Tweedy, Newcastle.

ADDITIONS TO WORKHOUSE, SCULCOATES.—The St. Hilda-street extension to Sculcoates workhouse has just been opened. The extension, which contains accommodation for 150 beds, has been erected at a cost of 5,593*l.* 12*s.* 6*d.* The architect of the building was Councillor T. B. Atkinson, the following being the contractors: Messrs. John Carr, bricklayer; F. Singleton, joiner; Williamson & Co., slaters; Atkinson & Son, plumbers; Quibell & Son, stonemasons; Stephenson & Christopher, painters; A. Reame & Co., electricians; Cristie & Co., artificial stone.

PARISH CHURCH, ISLINGTON.—The Chancellor of the Diocese of London has agreed to issue a faculty to authorise the carrying out of extensive alterations and improvements of the parish church of St. Mary, Islington, which was erected in 1751-4 after Launcelot Dowbiggin's designs. The new works, estimated to cost 12,000*l.*, will include an enlargement of the church at the east and west ends, a new chancel, two new doorways, a reseating of the galleries, and the construction of new staircases to the galleries. The faculty will provide for the removal, and the interment elsewhere, of the human remains beneath the site for the extended chancel.

INDUSTRIAL SCHOOL, HARBORNE, STAFFORDSHIRE.—The new Industrial School at Balden-road, Harborne, which has been erected to take the place of the old institution in Gem-street, was opened on the 22nd ult. The buildings have been erected from plans by Mr. Arthur Edwards, of Birmingham. Messrs. J. Harley & Son, also of Birmingham, were the contractors. There is accommodation for 150 lads, and the building is in the form of a square enclosing a large quadrangle. The front building, approached from Balden-road, faces due north, and consists of entrance-hall, committee-room, waiting-room, schoolroom, dining-hall, and governor's house, surmounted by a clock turret. On the left side are the workshops, lavatory, and spray-baths, gymnasium, swimming-baths, and manual instruction room, while opposite are the scullery, kitchen, stores, surgery, &c. Above are the dormitories and officers' bedrooms and other storerooms. The walls are built of Oldbury brindled bricks, with facings of granolithic, and the roofs are covered with Broseley tiles.

WORKHOUSE INFIRMARY, ST. ASAPH.—On the 22nd ult. the foundation-stone of the new workhouse infirmary at St. Asaph was laid. The new building is situated on the site of the old garden, and at the rear of the present workhouse. In the centre of the building, which will be three stories high, is the administrative block, and on either side two wards, each containing twelve beds, for males and females. There will be verandahs on the ground floor, and a balcony on the first floor, and fire-escape staircases will be fixed. The contract price was over 5,000*l.*, and the buildings are being erected by Messrs. Robert Evans & Son, Old Colwyn, from plans drawn by Mr. James Hughes, architect, Denbigh.

JUBILEE HALL EXTENSION, BRADFORD.—The memorial stones in connexion with the extension of the Jubilee Hall in Farfield-street, Manningham, Bradford, were laid recently. The extension comprises a hall facing Farfield-street, with an infants' room and three large classrooms, two of which will be on the upper floor. Direct communication will be opened between the present structure and the new portion by means of passages. There will be an open roof to the hall of pitch-pine. The total outlay is estimated at about 1,300*l.* Messrs. W. J. Morley & Son, of Bradford, are the architects.

BOARD SCHOOL, TIPTON.—The foundation-stone has just been laid at Tipton of a new Board School, which is to be erected from plans prepared by Mr. A. Long, architect. The building contract has been placed in the hands of Mr. T. Hardy, West Bromwich. The site, construction, and furnishing are estimated to cost 12,000*l.* The total length of the building will be 280 ft., and its greatest width 110 ft. It will include departments for boys, girls, and infants. The boys' and girls' departments will each contain three large classrooms and one large hall, the partitions being removable, so that each department may be made into a large hall, 83 ft. long by 22 ft. wide. The infants' department will consist of a room, 25 ft. by 22 ft., and three classrooms. The front will be of red bricks, with terra-cotta facings, and an ornamental tower will rise over the central portion of the building.

LIBRARY, HARTLEPOOL.—A new public library is being erected at Hartlepool on a triangular site at the junction of Northgate and Warren-street, having a frontage to the former of about 135 ft. and to the latter of about 125 ft. The entrance is from Northgate, approached on the ground floor by an open vestibule fitted with Bostwick iron gates, and provided on each side with recesses for cycles. Immediately inside the entrance is an inner vestibule leading to the central hall, 18 ft. by 13 ft. 6 in. from which access is obtained to the borrowers' hall, 18 ft. by 12 ft. 6in., the ladies' room, 20 ft. by 18 ft., the newsroom, 60 ft. by 25 ft., and the lending library, 52 ft. by 20 ft. 6 in. There is also a private pass door to the caretakers' quarters, which are placed at the west end of the building. On the upper floor, approached by a staircase leading from the entrance-hall, is provided a reference-room, 60 ft. by 26 ft., and a committee and record room, 21 ft. by 18 ft. The building is to be constructed of brick and stone, with the roof slated. It will be faced externally with Huncoat red plastic bricks, with patent Victoria stone dressings and enrichments. The floors will be of concrete and laid with wood-block flooring, but the entrance-hall, borrowers' hall, and landings will be laid with mosaic. The building has been designed by the Borough Engineer, Mr. H. C. Crummack, and is being erected under his supervision by Mr. R. J. Marshall, of Hartlepool, who was successful in securing the contract.

ASYLUM, NEWPORT.—The foundation-stone of the Newport County Asylum at Caerleon was laid by the Mayor of Newport recently. The asylum is in the first instance to provide accommodation for 368 patients, 184 of each sex, and with the administrative offices will accommodate 500. There will be six blocks for patients, three on either side, for sick and infirm, epileptic, and recent acute. The whole of the blocks are to have a southerly aspect, and all the wards are to be thoroughly cross-ventilated, and the blocks so arranged as to allow of easy supervision. There will be a second means of exit in case of emergency. There will be a dining and recreation hall, 70 ft. by 40 ft., with a stage 40 ft. by 21 ft. The whole of the parts occupied by patients will be heated by open fireplaces and also by the low-pressure hot-water system. Electric plant will be installed, and water supplied from Corporation mains. In addition to the main buildings it is proposed to erect a chapel, mortuary, cottages, and two entrance lodges. The Committee have already acquired houses for medical superintendent and steward. The builders are Messrs. John Linton & Co.; architect, Mr. A. J. Wood, London; and clerk of the works, Mr. W. B. Partington.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Robert Walker, architect, Windermere, has taken into partnership his son, Mr. Frank H. Walker, and Mr. James Carter, of Windermere (late of Darwen). The practice will be continued at Windermere under the style of "Walker, Carter, & Walker."——Messrs. Chas. Heathcote & Sons, architects (Manchester), have removed their offices from 6, Princess-street to 64, Cross-street, Manchester.

MEMORIAL TABLETS, ALDGATE, CITY.—The Lord Mayor recently unveiled tablets erected in St. Botolph's, Aldgate, to the memory of Dr. J. S. B. Cotman and William Symington, the inventor of steam navigation. The mural tablets, which are made of alabaster, were prepared by Messrs. John Daymond & Son, Vauxhall.

THE REMOVAL OF FIXED DUST RECEPTACLES.—The Public Health Committee of the London County Council reported as follows at the last meeting of the Council:—"One of the resolutions passed by the conference of representatives of the City Corporation and the Vestries and District Boards which met at the County Hall on June 29 and November 7, 1900, on the subject of streets and street traffic, was as follows: 'That, in the opinion of the conference, it is desirable that fixed ashpits should be abolished and movable receptacles provided in their place.' This resolution was referred to us by the Council on February 19, 1901. By-law 16, made by the Council under Section 39 (1) of the Public Health (London) Act, 1891, requires any person providing an ashpit to cause the same to consist of one or more movable receptacles. This by-law came into force on June 28, 1893, but it is not retrospective, and it does not enable the sanitary authorities to require the removal of an old brick or other fixed ashpit when a movable receptacle has been provided. These old fixed receptacles in such circumstances often become filled with refuse and give rise to recurring nuisances, and we think that the Council should endeavour to obtain power for the sanitary authorities to require their demolition in all cases in which movable receptacles have been provided."

THE BRICKLAYER'S HOUR.—In Westminster County Court recently, a bricklayer claimed 1*s.* 4*d* an hour's pay for work done, from Messrs. Mowlem, builders. One morning he went to the timekeeper and gave notice that he was going to leave. The defence was that plaintiff could not claim for the hour, as he should have given notice overnight. Judge Woodfall said that defendants claimed the right to give notice to their men in the morning, while the workmen must give notice overnight, but that was unfair. He gave judgment for the plaintiff.—*Daily Chronicle.*

ELECTRIC LIGHTING AT HOLYHEAD.—On the 26th ult. Colonel W. R. Slacke, R.E., Local Government Board Inspector, held an inquiry at the Town Hall, Holyhead, into the application of the Holyhead Urban District Council for powers to borrow 16,000*l.* in order to carry out the electric lighting of the town, and also to erect a refuse destructor. The amounts required were 12,700*l.* for electric lighting, and 3,300*l.* for the refuse destructor.

SANITARY INSPECTORS.—The Public Health Committee of the London County Council reported as follows at the last meeting of the Council:—"On February 3 last, the Council instructed us to 'prepare a return giving statistics as to the number of sanitary inspectors now employed by each Borough Council, compared with the tenement population, and a description of the duties assigned to such inspectors.' We referred the matter to the medical officer, and he has submitted to us a return based upon information furnished by the medical officers of health of the City of London and of the Metropolitan Boroughs. During the last ten years returns have from time to time been submitted to us giving particulars as to the sanitary inspectors employed in the several sanitary districts of London. Each return has shown an increase upon the numbers stated in the preceding return, and the facts which have been ascertained for the purposes of the present return indicate still further increase. The following table shows the number of inspectors employed in London in several years to which the returns relate:—

Year.	Number of sanitary inspectors in the whole of London.
1893	188*a*
1894	219*a*
1895	228*a*
1898	256*a*
1901	275
1903	301

Thus it will be seen that since 1893, the number of inspectors has increased by some 60 per cent. In 1901, the number of sanitary inspectors employed in each of the metropolitan boroughs was ascertained, and comparison between these numbers and those obtaining in 1903 may thus be made:—

Metropolitan borough.	Number of Sanitary Inspectors.		Increase (+) or decrease (−) in 1903 compared with 1901.
	1901.	1903.	
Battersea	9	11	+ 2
Bermondsey	†7	9	+ 2
Bethnal Green	§11	9	− 2
Camberwell	12	14	+ 2
Chelsea	4	4	—
Deptford	5	7	+ 2
Finsbury	7	9	+ 2
Fulham	6	6	—
Greenwich	5	†† 7	+ 2
Hackney	†15	14	− 1
Hammersmith	8	9	+ 1
Hampstead	5	7	+ 2
Holborn	* 5	5	—
Islington	‡20	20	—
Kensington	13	13	—
Lambeth	13	13	—
Lewisham	6	8	+ 2
Paddington	† 6	12	+ 6
Poplar	8	8	—
St. Marylebone	7	† 8	+ 1
St. Pancras	14	16	+ 2
Shoreditch	6	6	—
Southwark	‡18	17	− 1
Stepney	17	18	+ 1
Stoke Newington	2	3	+ 1
Wandsworth	13	§§11	− 2
Westminster, City	11	11	+ 1
Woolwich	8	9	+ 3
City of London	‖14	‖17	+ 26
London	275	301	

a Excluding inspectors employed in districts mentioned in Schedule C of the Metropolis Management Act.
* Including one vacancy and one temporary inspector.
† Including one temporary inspector.
‡ Including one vacancy.
§ Including three vacancies.
‖ Including seven meat inspectors.
†† Including two temporary inspectors.
§§ There are also five inspectors concerned with drains and sanitary fittings in old and new houses; these officers are under the direction and control of the surveyor.

Of the 301 inspectors employed in London, twenty are women. At the date of the last return eleven of the sanitary inspectors were women. The increase in the total number of inspectors in London since the date of the last return is, therefore, largely due to the appointment of women inspectors, who are now employed in fifteen districts in the inspection of workshops. We are carefully considering the question of the adequacy of the sanitary staffs of the various districts, and are in correspondence with several authorities on the subject. The report and return prepared by the medical officer have been printed, and we have given instructions for a copy to be sent to each member of the Council, and also to each of the Metropolitan Borough Councils." The Committee recommended accordingly.

CHURCH OF ST. GILES, CRIPPLEGATE WITHOUT.—Consequent upon the removal of the Quest House and other adjoining houses in Fore-street (of which we recently printed a description) from against the north wall of the church, the Ecclesiastical Commissioners have acquired the strip of land in order that the view of the church from that side may be no longer obstructed. The parish vestry have also made an offer of 1,770*l.* to the Corporation of the City of London for a parcel of land in front of the church, and if the purchase is effected will make an appeal for subscriptions towards a fund of 6,000*l.*, the estimated cost of restoring the north aisle.

METROPOLITAN IMPROVEMENTS (FUNDS) ACT, 1903.—A Government Bill under this title which Mr. Arthur Elliot has introduced into the House of Commons provides for the application by the Commissioners of Works and Public Buildings, towards the opening of the Mall, St. James's Park, into Charing Cross, of the surplus fund derived from moneys payable under the Battersea Park Act of 1851, 14-5 Vict., cap. 77. That statute alters and extends the Act of 9-10 Vict. for the formation of a Royal park in Battersea Fields, and sets up a surplus fund for accumulation and appropriation by Parliament on behalf of improvements in the metropolis or its neighbourhood. The new Act will enable the Commissioners to apply any residue that may remain to such other improvements in the metropolis, or its neighbourhood, as they, with the sanction of the Treasury, may think fit.

FRENCH CHALK, MARBLE, AND WHITE LEAD.—Mr. Payton, British Consul at Calais, reports that chalk has recently become an important item of export from France, it being estimated that last year 22,000 tons of common chalk were shipped to the United States, besides 8,000 tons of phosphoric chalk. In March of the present year three cargoes, in British vessels, of common chalk for the United States totalled 13,500 tons, and there was also a shipment for Middlesbrough. It comes from various places in the districts of Boulogne, Camiers, and Etaples, "and," Mr. Payton remarks, "the question naturally suggests itself whether this American demand could not be supplied from British ports." The production of marble and stone last year from the large quarries at Marquise represented a value of only 40,000*l.* The operations were slack because of the crisis in the sugar industry—stone being largely used in the refining of sugar. Mr. Walker, British Vice-Consul for the district of Lille, mentions that the violent campaign against the use of white lead (*blanc de céruse*) for painting has severely affected the industry, of which Lille is the principal French centre. He thinks it doubtful if white lead can be effectively replaced, various substitutes having hitherto failed to give satisfaction. A largely increased importation of oxide of zinc, and the introduction of a new product called "litophone," indicate that other countries, including the United Kingdom and Germany, quite as interested in sanitary questions as France, profit by the anti-white lead campaign to the detriment of French producers.

METROPOLITAN WATER BOARD.—Mr. William Terry, manager of the Sheffield Waterworks, who was recently appointed Clerk to the Metropolitan Water Board, has declined to take up the position, being, it is understood, unable to accept the conditions laid down by the Board in connexion with the appointment. The Board are now in treaty with Mr. A. Pilling, Town Clerk to Devonport, who was second for the post at the time of Mr. Terry's appointment.

HOUSING, LIVERPOOL.—Colonel W. R. Slacke, R.E., Inspector of the Local Government Board, held an inquiry at the Municipal Offices, Dale-street, on the 28th ult., into the application of the City Council for sanction to borrow 150,000*l.* to defray the cost of the purchase of the land and the erection of dwellings in connexion with the improvement scheme dealing with the Hornby-street area. This application included sanction to borrow 1,230*l.* for the erection of working-class dwellings in Eldon-street. Mr. Turton, deputy surveyor, said he estimated the cost of acquiring the land at 64,840*l.*, and of the buildings at 84,799*l.* They proposed to erect 444 dwellings, containing 1,218 rooms, and providing accommodation for 2,446 persons. They would not disturb more than 750 people at the first clearance, and would not proceed to a second clearance until accomodation had been provided for 500 persons. The new buildings would not be more than three stories in height. The question of rents would have to be settled subsequently. Dr. Hope, medical officer of health, and Mr. J. A. Brodie, City Engineer, both gave evidence in support of the advisability of erecting the proposed dwellings. The latter pointed out that concrete buildings would last quite as long as brick or stone.

ARTISANS' DWELLINGS, BRIGHTON.—At the Brighton Town Hall, on the 27th ult., Colonel A. C. Smith, R.E., the Inspector appointed by the Local Government Board, held an inquiry with reference to the application of the Brighton Town Council for sanction "to borrow 8,440*l.* for the provision of dwellings in Dewé-road for persons of the working class." The Corporation were represented by the Deputy Town Clerk (Mr. Hugo Talbot), the Borough Engineer and Surveyor (Mr. F. J. C. May), and Councillor Butt-Thompson (Chairman of the Sanitary Committee). The Town Clerk said that already thirty dwellings had been erected on part of the site, and it was intended to erect another thirty-one in five blocks, and as the land fell very sharply back to the road, the Borough Surveyor had provided for half basements in the plans. Each house would contain five rooms, and on the assumption that the repayment of the loan would be extended over forty years it was estimated that the houses would be let at 7*s.* 6*d.* a week. The Borough Surveyor gave detailed information about the plans, and pointed out that the houses would be on the same plan as those already erected, the only difference being that necessitated by the fall of the ground.

THE PROPOSED MUNICIPAL BUILDINGS, DEPTFORD.—At a recent meeting of Deptford Borough Council, the General Purposes Committee recommended that the tender of Mr. H. L. Holloway, of Union Works, Church-street, Deptford, to execute the whole of the works in the erection of the municipal buildings, in New Cross-road, in accordance with the drawings and specification, &c., and to the entire satisfaction of the Council's architects, Messrs. Lanchester, Stewart, & Rickards, for the sum of 28,433*l.*, be accepted. This was agreed to.—It was recommended that the Council advertise for a clerk of the works at a salary of 4*l.* 10*s.* per week.—Councillor Soper said that he considered this was too much. They were paying away the ratepayers' money, and he moved an amendment that the salary be 4*l.* 4*s.* per week.—Councillor Barrett seconded. The amendment was lost, and the recommendation agreed to.

A FINE QUEENSLAND TREE.—A Queensland correspondent writes: "The silky oak (*Grevillea robusta*), one of the most valued trees for timber purposes in North Queensland, is spreading in many parts of the world, especially in Ceylon. It is very hardy and drought-resisting, and flourishes equally well at sea level and 6,000 ft. above. When split on the quarter this timber shows a handsome, oak-like grain, the prefix 'silky' being either because of the silky underside of the leaf, or on account of the bright appearance of the freshly-split wood. The chief characteristic of the timber is its fissility. It is light in colour, and has a handsome, oak-like figure. It is moderately hard, and works well. Two well-seasoned slabs of this wood have weights which correspond to 38 lb. 14 oz. and 36 lb. 2 oz. respectively per cubic foot. Specimens slabs of this beautiful wood can be inspected at 49, East-cheap, the City office of the Agent-General for Queensland. These slabs, together with specimens of other North Queensland woods, were supplied by Messrs. Rooney & Co., timber merchants, Townsville."

STATUE, DALLINGTON CHURCH.—On Whit Sunday morning, at the parish church of St. Mary, at Dallington, some additional sculpture that has been added to the stone reredos designed by Messrs. Law & Harris, architects, of Northampton, was unveiled. Funds not being available when the reredos was first erected for filling all the twelve niches with statues of the various Apostles, this latter work has proceeded gradually, and now there are only four more to be filled to make the reredos complete. The statues already placed there were St. Andrew, St. John, St. Peter, St Paul, St. James the More, St. Matthew, and St. Philip, and to these that of St. James the Less has now been added. Like the rest, it is of Caen stone, and occupies the niche nearest the altar on the south side. The work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

URINALS OPENING ON TO STREETS.—The Public Health Committee of the London County Council reported as follows at the last meeting of the Council:—"Section 2 (1) (*b*) of the Public Health (London) Act, 1891, enables the Sanitary Authorities to deal as nuisances with urinals which are so foul or in such a state as to be a nuisance or injurious or dangerous to health, and Section 45 (2) prohibits the erection of sanitary conveniences (which term includes urinals) in, or accessible from, any street without the consent in writing of the Sanitary Authority, and the consent may be given upon such terms as to the use or removal thereof at any time as the Sanitary Authority may think fit, and a penalty is provided for non-compliance with the consent or refusal to remove a urinal. Our attention has been frequently called to cases in which urinals opening on to streets have been so constructed as to be offensive to public decency. These urinals were no doubt erected before the passing of the Act of 1891. We are advised that there is no power to deal effectively with such cases under the existing law. We think it is desirable that the Council should promote legislation to the effect that if any urinal or other such convenience opening on any street, and constructed before the passing of the Act of 1891, is, in the opinion of the Sanitary Authority, so placed or constructed as to be a nuisance or offensive to public decency, the Sanitary Authority may, by notice, require the owner to remove such urinal or convenience, or otherwise to reconstruct the same in such a manner and with such materials as may be required to abate the nuisance and remove the offence against public decency." They also reported that "several of the London Sanitary Authorities have asked for power to require the paving of stables. We have had frequent complaints of nuisance caused from manure at stables in various parts of London, and we think it would be of great assistance in removing causes of complaint if the Sanitary Authorities were enabled to require such stables to be properly paved with some impervious material. We are of opinion that the matter could best be dealt with if the Council were enabled to make by-laws on the subject which should be enforced by the Sanitary Authorities."

SHAKESPEARE'S BIRTHPLACE.—Additional proof was afforded on the 25th ult., when taking down

the remnant of frontage of the two Henley-street cottages, that the Stratford Corporation did a wise thing in deciding to retain what is known as Thomas Greene's house (date 1563), now used as a china shop. The demolition of the adjoining front wall has revealed the interesting fact that the house formerly possessed an overhanging upper story. The end principal or story-post contains the original oak bracket which supported the upper floor, and both were marked by heavy modern brickwork. The principal and bracket are exactly the same style as those at the ancient guild alm houses in Church-street, which, however are of much older date, and it is quite probable that portions of Greene's house are of the same period. It is proved to have formed part of the property that originally belonged to the Guild of the Holy Cross, and at the Dissolution it was vested in the Corporation under a new charter. Another interesting discovery has been brought about by the taking down of the comparatively modern cottages—the site of the fire which occurred towards the close of the sixteenth century has been located. The charred timbers are visible, and all doubt is set at rest as to which end of the building was partially destroyed. We understand that Mr. J. A. Cossins has made a careful examination of the building—though the discoveries on the 25th ult. have not yet come under his observation—and an exhaustive report will in due course be presented to the Corporation. The gable end of the two cottages adjoining Shakespeare's garden, which has also been brought to light, contains some massive oak framings, and at a lower level are traces of the steep-pitched and thatched roof of the cottages that adjoined, and which in after years gave place to the commonplace houses now happily demolished.—*Birmingham Post.*

INTERNATIONAL FIRE PREVENTION CONGRESS.—The International Fire Prevention Congress, convened by the British Fire Prevention Committee, will be attended by six special delegates from our leading Government departments, as also by six representatives of the City of London, three from the Metropolitan Asylums Board, four from the London Chamber of Commerce, and quite a number from the other Local Authorities and institutions. Nearly all the leading provincial municipalities have also decided to be officially represented on this occasion, including cities such as Edinburgh, Glasgow, Aberdeen, Liverpool, Birmingham, &c., to the number of over eighty corporations. The German, French, Italian, Hungarian, Belgian, and other continental Governments have already intimated their intention of sending official delegates, as have also a number of leading foreign municipalities. The more distant colonies of Australia and Canada, as also India, will be sending representatives of the various institutions interested, and a large deputation of engineers is coming over from the United States. The Congress being essentially a technical one, dealing with the "prevention" of fire by better construction and equipment, by legislation and other precautionary measures, the membership comprises mainly public officials, architects, engineers, and fire brigade officers, but the insurance interests will also be represented, as also the universities and other teaching bodies. Owing to the great demand for participation in the Congress, it has been decided to close the application lists, excepting in the case of the accredited representatives of Public Authorities, Institutions, and Societies, as from June 5.

DISCOVERIES AT BENI HASAN.—Mr. John Garstang, writing to the *Times* from University College, Liverpool, gives an account of the discovery of a number of hitherto unopened tombs at Beni Hasan. Among the objects found were a number of painted coffins giving illustrations of ships, and models in wood representing operations of farming and cultivation. Among the objects found in the tombs were musical instruments—a lyre, two flutes, and a wooden drum with parchment ends; also basket work, vases, beads, and jewellery. A wooden capital in the form of a lily appears to have been the only object of specially architectural character. It is hoped that an exhibition of the objects found will be arranged for at the rooms of the Society of Antiquaries in the month of July.

BAVARIAN TIMBER TRADE.—According to a report forwarded to the British Foreign Office from Nuremberg by Mr. Vice-Consul Ehrenbacher the general crisis and the decline in the timber industry in 1901 had interfered considerably with the Bavarian trade, and prices had fallen nearly 20 per cent. The Government being the largest owners of woods and forests in Bavaria is almost able to regulate the quotations in the timber trade, and, owing to the reduction in felling in 1902, the situation has become better and prices are hardening. Timber for planing works profited, whereas building timber, on account of the standstill in the building trades, could not obtain an increase, and remains unprofitable. The Nuremberg land Companies say in their annual reports for 1901-2 that the general depression naturally greatly influenced building in their locality. Hence, not being able to dispose of building plots advantageously, properties have in very few instances changed hands.

APPOINTMENTS TO THE IMPERIAL SERVICE ORDER.—On May 28 the following gentlemen were appointed Companions of the Order:—Kivas Tully, Consulting Architect and Engineer, Public Works Department, Province of Ontario; John Deane Tilney, M.Inst.C.E., Locomotive Superintendent of the Eastern System of the Colony of the Cape of Good Hope; Walter Henry Cobley, M.Inst.C.E., Superintendent Engineer, Surveys and Construction, Government Railways of the Colony of Natal; John Hope Callcott, A.M.Inst.C.E., late Deputy Colonial Engineer and Surveyor-General, Penang; Leonard Wray, Curator of the State Museum and State Geologist, Perak; Charles Rastrick Hanson, M.Inst.C.E., Resident Engineer for Railways, Perak, Federated Malay States; and C. E. Owen Smith, Superintendent of Public Buildings of the State of South Australia.

LEGAL.

MASTER PLASTERER'S ACTION AGAINST CEMENT MERCHANTS SETTLED.

THE hearing was resumed on the 28th inst. before Mr. Justice Grantham, sitting without a jury in the King's Bench Division, on the case of Reece *v.* Chas Nelson & Co., Ltd.—an action by the plaintiff, a master plasterer, against the defendants, cement merchants and manufacturers, for damages for the alleged breach of warranty with reference to the supply by the defendants to the plaintiff of a quantity of selenitic blue lias lime cement for use in some plastering work in a new medical ward at the Poplar Hospital. The plaintiff's case was that he, as the sub-contractor for the plastering work, was bound under the specification to use the defendants' cement, and that the cement after it had been put on the walls blistered, and that defendants were responsible for the expense incurred in remedying the defect. The case was fully reported in the *Builder* of May 23 last.

Mr. Horace Avory, K.C., and Mr. Hudson appeared for the plaintiff; and Mr. McCall, K.C., and Mr. Cranstoun for the defendants.

When the case was called on a consultation took place between the counsel engaged, and in the result Mr. Avory and Mr. McCall asked his Lordship to see them privately in order to have his assistance in putting an end to the case. His Lordship assented to the proposal.

After the learned counsel and his Lordship returned into Court, Mr. McCall said it would not be necessary, owing to his Lordship's assistance, that the case should be tried out. His clients represented by Mr. Blythe (whom his Lordship saw in the witness-box) were quite prepared to meet the plaintiff in this case because it was probable—although the evidence that had already been given made no imputation upon the excellence of the manufacture of this selenitic cement—in this particular instance that during the carriage of the stuff—for which the defendants under the contract were responsible—something might have happened to this particular parcel which caused the damage of which the plaintiff complained, and on that ground he was prepared to assent to the terms agreed upon, and he did so the more readily after the way Mr. Blythe stated that defendants carried on their business, *viz*, that defendants carried on their business upon the terms of always meeting, and trying to meet, any claim made against them for any accident which occurred in the manufacture of the stuff.

Mr. Avory said he had nothing to add, except to say that plaintiff accepted the sum the defendants were willing to pay in this matter. The plaintiff's only object in bringing the action was to reimburse himself the loss he had undoubtedly suffered.

His Lordship said he thought the parties had come to a very honourable settlement. It was a settlement honourable to both sides. He thought the evidence given by Mr. Blythe was the evidence of an honourable man, and showed conclusively that the defendants' carried on their business in an honourable way.

The terms of the settlement were not stated in court.

UNNECESSARY NOTICE ASKED FOR BY SANITARY AUTHORITIES.

AT the Worship-street Police-court on the 20th ult., before Mr. Haden Corser, the case of Cook *v.* Fulford was heard. This was a summons by the Borough Council of Stepney against a builder for penalties for fixing a new water-closet basin and trap without previously giving notice to the Clerk to the Borough Council. Mr. Young appeared for the Borough Council, and stated the summons was for neglecting to give notice as required by By-law 14, which he read.

Mr. Alfred Cook, one of the Sanitary Inspectors, gave evidence that he visited No. 35, Lamb-street, Spitalfields, on May 6 last, and found a new water-closet basin and trap had been fixed. He saw Mr. Fulford, the builder, who, in reply, stated that under the circumstances he had no idea any notice was required.

Cross-examined by Mr. Brewster, solicitor for Mr. Fulford, the Sanitary Inspector said the Borough Council had had the drainage at Lamb-street under their notice since March, but he was not aware that the sewer into which the house drained was choked. He admitted serving the notice dated April 29 last. That notice required a choked and defective water-closet to be put right. He contended that, though Mr. Fulford had put in the new water-closet in consequence of notice from the Borough Council, it was necessary for him to give notice to the Clerk to the Borough Council before doing the work, although the defect could only be remedied in one way. The basin and trap were properly fixed.

At this point Mr. Brewster submitted that the by-law did not apply to a matter of this kind, and that it only provided for notice being given when an owner intended to do work on his own initiative. In the present case the owner was served with an order to put in a new water-closet. The by-law was obviously intended to prevent work being done without the knowledge of the Sanitary Authorities, and in the present case the Sanitary Authorities must, if they did their duty, inspect, and after inspection they had admitted everything was properly done.

The magistrate dismissed the summons.

CASE UNDER THE LONDON BUILDING ACT.

AT the Mansion House on the 27th ult., the Charing Cross and Strand Electricity Supply Corporation, Ltd., were summoned for that they on or before July 12, 1901, at the corner of Mincing-lane and Fenchurch-street, did begin to execute a work respecting which they ought to serve a building notice under the London Building Act, 1894, before serving such notice. The work referred to in the summons was the construction of an underground chamber in connexion with electric light wires. There were six other similar summonses in respect to the construction of such underground chambers in other parts of the City. The summonses were issued at the instance of the District Surveyor under the London Building Act, 1894, for the eastern division of the City, and they had been adjourned from time to time pending a decision of the High Court as to whether the underground chambers were "buildings" within the meaning of the Act. Mr. Bale, solicitor, appeared in support of the summonses; Mr. F. F. Daldy appeared for the defendants. Mr. Bale said that the Building Act provided that where any building, or structure, or work was about to be begun a building notice respecting it must be served on the District Surveyor. The buildings in this case were underground chambers in connexion with electric light wires. The chambers were 7 ft. or 8 ft. square. The question arose as to whether they were "buildings" within the meaning of the Act; and, although there was a decision of the High Court, the defendants wanted to have the matter decided again. Some other similar summonses had been issued from the Guildhall, and the magistrate at the Guildhall convicted. The case was thereupon taken to the High Court. The present summonses were issued in December, 1901, and had been adjourned from time to time by arrangement. The case in the High Court had been decided against the defendants. The matter now merely resolved itself into a question of penalties and costs. He should only ask for a nominal penalty and an order for a substantial amount of costs. Mr. Daldy, for the defendants, said that this was not a case of an offence. People were justified in doubting whether an electric light box in the street, which was really nothing more than a local enlargement of the electric conduit, was a building coming within the Act. Sir Joseph Savory asked what penalty was imposed by the magistrate at the Guildhall. Mr. Daldy replied that the penalty was 1*s.* on each summons. Sir Joseph Savory said he thought that a nominal penalty of 1*s.* on each summons would suffice. He should make an order for 10*l.* 10*s.* costs on the first summons.—*Times.*

PAVING A FOOTWAY.

AT West London, Mr. J. B. Mulholland, the proprietor of the King's Theatre, Hammersmith, was summoned by the Hammersmith Borough Council in respect of a claim for 250*l.* 7*s.* 1*d.*, the cost of paving the footway outside his theatre in the Hammersmith-road. Mr. Bodkin supported the summons, and the defendant was represented by Mr. Courthope-Munroe. It appeared that when the London County Council granted permission to the defendant to erect the theatre they imposed one condition—that part of the land required by him should be thrown into the public highway. The Borough Council subsequently resolved to pave the portion thus dedicated, and the defendant was charged with the cost. Mr. Bodkin set up two contentions:—That a new street did not necessarily consist of a street with pavements on either side and bounded by houses, but might consist of a mere strip of land, which was bounded on one side by an ancient highway, such as the Hammersmith-road, and by property on the other side; and, secondly, that a new street might consist of a strip which was thrown into an old highway, such as Rowan-road, the street at the side of the theatre, which had been repaired for years by the Local Authority. Mr. Courthope-Munroe submitted that Mr. Mulholland had a distinct grievance. After vainly contesting the right of the London County Council to make him hand over part of his land—worth 1,000*l.*—to the public, he was now called upon by the Borough

Council to pay for the expense of paving that land. He argued that a strip of land thus dedicated must be a substantial strip before it could be termed a new street. Forty yards out of a length of three-quarters of a mile, which was the length of Hammersmith-road, could not be deemed a substantial strip, and if this case was successful 500 new streets might thus be created in one road. The fact was that the general widening of Hammersmith-road was contemplated by the Council, and no doubt the Council hoped to make the owners of the property adjoining the road, instead of the ratepayers, pay for the public improvement. In giving a considered judgment, Mr. Rose said that there was no doubt that in 1855, when the Metropolis Management Act was passed, the popular meaning of a street was a road flanked by houses. By a recent decision, houses on one side would suffice, but how many houses had not yet become a decided point. He was, however, confident that there must be houses on one side. In this case there was only one building—the King's Theatre—so he held that the apportionment was bad and the resolution of the Borough Council invalid. He therefore dismissed the summons with three guineas costs. Mr. Bodkin intimated that he would apply for a case to be stated.—*Times*.

WOODTHORPE *V.* THE CHARING CROSS AND STRAND ELECTRICITY SUPPLY CORPORATION, LTD.

THE Charing Cross and Strand Electricity Supply Corporation, of 15, Maiden-lane, were summoned, at the instance of Mr. Edmund Woodthorpe, District Surveyor for the Northern Division of the City of London, for having failed to give notice, in accordance with the London Building Act, 1894, before they commenced certain works, namely, "the construction of a certain inspection chamber under the street, at the corner of Wormwood-street and Bishopsgate-street Within."

This case was heard at the Guildhall Justice Room by Mr. Alderman Crosby on January 3, 1902, who gave his decision on January 13, 1902, as follows:—

"I find as facts that the company were the persons causing or directing the work in question to be executed in the street. That the work was a street box necessary for purposes in connexion with the supply of electric energy by the company, and that no notice was given to the District Surveyor in accordance with Section 145 of the London Building Act, 1894. I hold that this is a building structure or work within the meaning of the said Act, and I am unable to distinguish this case from the case of Crow *v.* Whitechapel Board of Works, and therefore convict the company and fine them the sum of 2*l.* and 2*l.* 2*s.* costs."

Mr. Shiress Will, K.C., counsel appearing for the company, asked the Alderman to state a case. This he refused to do. The Electric Light Co. then applied to the High Court and obtained a rule *nisi* which was made absolute. The appeal was heard on May 15, 1903, in the High Court of Justice, King's Bench Division, Divisional Court, before the Lord Chief Justice, Mr. Justice Wills and Mr. Justice Channell. The company were represented by Mr. Shiress Will, K.C., and Mr. Daldy, instructed by Messrs. Fladgate & Co. (solicitors). Mr. Woodthorpe was represented by Mr. Horace Avory, K.C. and Mr. Rowsell, instructed by the solicitor to the London County Council.

After hearing the arguments in the case all three judges delivered separate judgments in Mr. Woodthorpe's favour as follows:—

Judgment.

The Lord Chief Justice: The consideration of the arguments in this case has satisfied me that there is no substantial distinction between this case and "The Whitechapel Board of Works *v.* Crow," re-reported in 84 *Law Journal* (New series) and 65 *Justice of the Peace*, and it has also satisfied me, speaking for myself, that the decision in the Whitechapel case was right. It is perfectly true that the Provisional Order provides for a number of safeguards in the interest of the public, if I may use that expression, and in the public interest, and, as Mr. Wills has pointed out, it does provide, before street boxes can be constructed, notice is to be given to the Road Authority, and a notice given to the Postmaster-General. He is also perfectly correct in saying that, so far as notice has to be given to the Road Authority, it is another instance of the kind of protection which accompanies statutory powers to interfere with public rights of passage, public roads, and public interests, because, at the time of the Gas Works Clauses Act, as he has truly said, you could not lay mains in the street without communicating with the public authority, and those powers have been given to the Electric Lighting Companies; but he says that because you find that the street boxes, I will put it, as far as the argument is concerned, must be practically constructed in accordance with a plan approved of by the Postmaster-General and the Local Authority, that by implication excludes the application of the sections of the Building Act. Upon the broad argument that they must be excluded because you have to obey the directions of those two people, that seems to me an argument which, to a certain extent, defeats itself, because it might be said that if the two Authorities which were contemplated distinctly, namely, the Local Authority and the Postmaster-General, differed, you would have to obey either of them or, if you possibly could, to obey both of them; but it seems to me that kind of argument loses sight of the real ground for the insertion of these sections. These sections are not inserted because you are to obey one or to obey the other, but that the persons who have to protect the public interests will have an opportunity to exercise their judgment so far as their interests are concerned, or, in other words, as I ventured to put it in the course of the case, the Postmaster-General was to have notice to see that the telegraph cable and other Post Office rights were not interfered with, and the Road Authority was to have notice in order that it might see that the surface of the road was not interfered with, and not, in their view, rendered dangerous.

That leaves the remaining consideration whether or not the sections of the London Building Act apply to this case? With regard to the structure itself, it is found by the magistrate that it was a building, structure, or work within the meaning of Section 145 and Section 72, and I think we are bound by that. But I wish to say that there was ample evidence on which the magistrate could come to the conclusion at which he arrived. This is a chamber underneath the street in which people can stand. I think it is some 7 ft. or 8 ft., or even greater depth, in which there are pipes and mains, so that there is a sort of cellar, or chamber, in which this work is carried on, so I have no doubt that is a construction under a public way. That being so, why should not the interest of the person whose duty it is, the District Surveyor, to safeguard those, be protected by notice being given to him? As was pointed out, questions of footings at a considerable depth, and questions of walls which will support the earth at the sides are matters which the District Surveyor would have special knowledge of, and which he would have to consider in connexion with an ordinary cellar under the footway. To say there is no need for him to consider it because the Postmaster-General will have looked at it from the point of view of the telegraph cables, and the Road Authority will have looked at it from the point of view of the surveyor of the road, only seems to me to lose sight of the reason for the argument that these notices should be given. I think the case is identical, in all material points, with the Whitechapel case. I see no reason for giving effect to the argument that this Provisional Order terminated the matter; upon this Order itself I see no reason why notice should not be given to the District Surveyor in order that he might have the opportunity of safeguarding the interest which it is his duty to safeguard. I give this decision with regard to the structure in this case, and I do not deal with those cases which Mr. Wills says have not yet been brought within the Act, which, for ought I know may not be structures at all, which may be mere boxes and holes, which have quite a different construction in fact. I therefore come to the conclusion that the decision of the magistrate is right, and that this appeal should be dismissed.

Mr. Justice Wills: I am of the same opinion upon both heads which have been disposed of. As to this being a structure within the meaning of the Act, I cannot see how it is possible to come to any other conclusion, whether you regard it as a question of fact, or a question of law.

As to the remaining question, which is the more important one, at first sight the argument of Mr. Wills is taking that inasmuch as under the Provisional Order, which has been confirmed and made an Act of Parliament, no work of this kind can be executed, except in accordance with the plan which has been approved of by the Postmaster-General and the Local Authority, if the District Surveyor came to a different conclusion with regard to what was necessary, and to a conclusion which clashed with that of the Postmaster-General and the Local Authority, there would be a deadlock, and, therefore, it is to be presumed that that is not intended as a possibility contemplated by the Act of Parliament; but legislation of this kind is practical, and practically I should think there would be no sort of difficulty. It may very well be that, from the Postmaster-General's point of view, something which the District Surveyor would be indifferent about may be insisted upon and rightly insisted upon, and it might be that that would clash with the plan which was approved by the District Surveyor. Then what would be the result? The result would be simply that those who were interested would put their heads together and would hit upon some device which would satisfy all the three Authorities, and it is to be observed precisely the same difficulty would arise within the area of the 13th Section, Sub-Section *e*, of the Provisional Order Confirmation Act, because there the one approval which is necessary is not the one approval of the Postmaster-General nor the approval of the Local Authority, but it is the joint approval of both. That implies that before the joint approval can be given, these two Authorities must agree upon something in common which will protect both the interests they have to look after. It does not seem to me it introduces any practical difficulty that a third Authority has to be satisfied also. I can see no reason whatever for distinguishing this case from the case which has already been decided. I am bound to say that, after having carefully considered it, I come to the conclusion that the judgment which was given in the other case was right, and that it was the decision I should have given myself if I had had the same question before me.

Mr. Justice Channell: I am of the same opinion. It is clear, beyond any possible doubt, that this was a structure to which the provisions of Section 72 of the London Building Act would apply if there were nothing to alter them, or take them away. Then you have a subsequent Provisional Order, that has the effect of an Act of Parliament, dealing with the special matter of these boxes. If the provisions of that Order had been inconsistent with the provisions of the other Act, being, in substance, in relation to a special matter, that would have had the effect of supplying *pro tanto*, as far as regards this subject matter, the provisions of the general Act. But I do not think they are necessarily inconsistent. It has been said that each of these different approving Authorities is entitled to have those things put into this box which are necessary for the protection of those interests which it has got to look after. It is not to be supposed that the other people would object to the provisions for the protection of the other Authority, although they may not happen to be required for their own purposes, and be things that otherwise would not require to be done. There is no evidence that there would be any difficulty at all.

Mr. Horace Avory: The appeal is dismissed with costs, my lord?

The Lord Chief Justice: Yes.

PATENTS OF THE WEEK:

APPLICATIONS PUBLISHED.*

2,315 of 1902.—J. HARDING: *Automatic Ventilator.*

An automatically controlled ventilator, having a capillary tube balanced horizontally on trunnions, the tube being closed at one end and having a bulb at the other end containing a fluid contracting or expanding by changes of temperature, and so balanced that upon a rise of temperature beyond the normal for which the apparatus is set, the tube will rock on its trunnions by reason of the change of position of the centre of gravity of the tube; in combination with a balanced valve governing a passage communicating with the outer atmosphere, and mechanical connexions between the capillary tube and the balanced valve, whereby the valve is opened by the motion of the tube upon an increase in temperature, and closed upon a decreate in temperature.

10,131 of 1902.—W. R. HOLBROOK: *Locks and Latches.*

A rim lock with an adjustable keyhole consisting of a tumbler attached to the frame and not to the parts which slide within the frame, and projections on which rests the keyhole plate instead of on the mechanism.

10,360 of 1902.—A. RILEY: *Guards for Wood Planing and Moulding Machines.*

A guard for the cutters of wood planing and moulding machines of such a form and construction as to permit of the cutters being visible when covered by the guard, and means for supporting the same in such manner as to permit of its being raised, slid endwise, and rotated.

10,430 of 1902.—W. P. BONWICK: *Devices for Preventing Access of Coal, Cinders, and the Like to the Archways or Flues of Kitchener Boilers.*

For preventing access of coal, cinders, and the like to the archways or other flues of kitchener boilers, whilst allowing flame and hot gases to enter freely, a refractory block furnished at its back with projections of such shape and so disposed that when the block is placed within the fireplace of a kitchener and centrally in front of the flue with its rear projections against the boiler, ways are formed between the block and the boiler at the top and the sides of the block for the free passage of flame and hot gases from the fire to the flue, the block being also formed with a hole or holes that will allow of flame and hot gases passing directly through the block to the back thereof, whether or not such block be also provided with knobs or projections at its sides.

11,315 of 1902.—R. BOWES: *Kitchen Grates or Furnaces and other Fireplaces where there are Domestic Heating Boilers or Boilers for Heating Purposes.*

In kitchen grates or fireplaces having boilers in which a trough is used and the products of the combustion escape from above the fire in the trough and circulate round the oven or ovens or boiler to be heated.

11,925 of 1902.—J. PARKER and PARKER & SON, Ltd.: *Construction of Wooden Shelves, Plinths, and Fambs for use in Combination with all Kinds of Structural Woodwork.*

A shelf or plinth consisting of a face piece, over the inner surface of which is secured a number of battens, the edges and ends of the face piece receiving ornamental or plain strips, and the outer faces of the battens receiving a layer of wood or other suitable material so secured to the battens that the completed structure presents to view a shelf or

* All these applications are in the stage in which opposition to the grants of Patent upon them can be made.

plinth suitable for use as part of any structural woodwork.

13,257 of 1902.—E. BAUMANN: *Construction of Building Blocks, Stones, or Bricks Employed in the Construction of Bridges, Archways, Fireplaces, or the Like.*

A building or vault block provided of stone or brick, corresponding in taper with the radius of the arch or vault to be built, upon the upper end of which block is formed a suitable recess; this recess is preferably upon the side nearest the key stone, whether upon its right or left hand; the other side of the block at this part projects in a corresponding degree for fitting within the recess in the block next adjoining the keystone. Projections are formed upon both sides by this part, as also upon the upper end of each block, and in the centre a suitable rib is provided. This rib in building a vault or archway is immediatelyopposite a joint in the next or adjoining arch, causing the block to assist to bind together its adjoining two blocks upon both sides. By this construction no binding material is necessary. The recesses and projections make it impossible for the blocks to shift their positions when once laid, and the projecting upper rib provides for their being placed quickly and accurately in position.

13,270 of 1902.—J. TERRY: *Machines for Cutting Pockets in the Pulley Stiles of Sash Frames.*

A machine for cutting pockets in the pulley stiles of sash frames, consisting in the combination of a standard provided with a stationary work receiving table having an adjustable sliding fence, a treadle operated swing frame carrying two circular saws, a clamping plate and hand mechanism for operating the same, two sets of cross saws, and mechanism for reciprocating the same, together with hand mechanism for raising and lowering the saws.

14,217 of 1902.—H. H. LEE: *Boilers Chiefly Designed for Kitchen Ranges.*

A boiler composed of a series of superposed connected sections adapted to lie alternately on opposite sides of a flue so that the gases passing through the said flue are caused to travel in a zigzag direction.

14,431 of 1902.—G. COUZENS: *Means and Appliances for Hinging Window Casements.*

The object of this invention is to hinge casements so that they will open in such way as to allow the outside of the glass to be cleaned from the inside of the room. Where casements are hinged as at present by ordinary butt hinges it is impossible to clean the outside of the glass from the inside of the room, thus necessitating the use of ladders. This invention is designed to obviate this difficulty, and consists of a special hinge made to fix on the frame and a sash with projecting arms pivoted at the ends. The hinge is fixed to frame and sash on top and bottom and projects upwards, and the action of opening the sash throws it into such a position that an opening is formed between the frame and sash about double the distance of the pivotted end of the hinge from the frame, allowing sufficient space for the hand and arm to be put through, and thus to enable any one to clean the outside of the glass from inside the room.

1,084 of 1903.—H. H. PRENTYMAN: *Window Sashes*

A reversible window sash, consisting in the combination with a window sash, the same having longitudinal openings in the outer vertical sides thereof, metallic tongues within the said openings, means for maintaining said metallic tongues yieldingly within said openings, a metallic channel bar having a longitudinal groove therein into which said metallic tongues project, a plate secured to the outer vertical sides of said window-sash, said plate enclosing the adjacent ends of the metallic tongues, a bolt passing through said plate, and to which the channel bars and sash have pivotal connexions.

1,096 of 1903.—J. C. RUCK: *Adjustable Rail or Rod Holders for Mantel Shelves and the Like.*

In adjustable rail or rod holders for mantel shelves and the like, clamps carrying pivoted arms or brackets, said brackets having a pivot attachment with a ring for rigidly holding a rail or rod.

1,479 of 1903.—A. KOENIG: *Manufacture of Material known as Compoboard, for Use in Covering Walls and Ceilings as a Substitute for Plaster.*

In the manufacture of compoboard, the construction and use of slats made of short pieces of wood connected together by interlocked joints of compoboard, having the wood slats thereof made in sections rebated, dovetailed, matched, tongued, and grooved, or grooved and tongued and rebated either vertically, laterally, or longitudinally, or in two or more of these directions to form interlocked joints.

14,107 of 1902.—W. KIMBERLEY and DAVID KIMBERLEY & SONS: *Planes.*

A mouthpiece for a plane, in which the essential internal parts of the throat of the plane are cast, stamped, or otherwise formed, and placed in the suitable cavity made to receive the same in the wood body of the plane.

24,257 of 1902.—J. W. MACKENZIE (J. G. LODGE): *Window Sash Support to Facilitate the Ready Removal of Sliding Sashes from their Frames.*

In window sash supports adapted to facilitate the displacement and removal of sliding sashes, a bar or rod with armatures fixed or movable, the said bar or rod sliding and rotating in supporting brackets when the armatures are attached thereto.

2,451 of 1903.—J. BATCHELAR, H. TURNER, and THE VAPOUR PREVENTION, LTD.: *Apparatus for the Prevention of Steamy Windows.*

An apparatus for the prevention of steamy windows consisting in the use of an inner chamber formed of iron or any suitable material, becoming entirely heated by gas or electricity, in combination with an outer chamber having a constant supply of cold air which is converted into hot dry air.

2,458 of 1903.—C. KRAUSE: *Methods of Producing Artificial Stone.*

A method of producing artificial stone characterised by adding pieces of corrugated cardboard to the mass intended for forming the artificial stone.

3,301 of 1903.—E. F. W. U. GRABAU: *Production of Washable Wall-paper.*

In producing washable wall-paper with ordinary wall-paper printing rollers, mixing aniline or transparent colours with a pasty vehicle prepared with an addition of spirit or alcohol before use. The vehicle consists of about 1 part of caustic soda, 21 parts of water, 2 parts of potato flour, and 0·05 parts of borax; the different parts being mixed in a certain order, and the vehicle thus obtained diluted by means of glycerine, spirit, or alcohol.

4,807 of 1903.—A. B. WOOD: *Decorating or Ornamenting Articles of Porcelain, China, Earthenware, and the Like.*

A method of decorating or ornamenting articles of porcelain, china, earthenware, and the like, which consists of forming a recess, channel, or groove of appropriate shape in cross section in the desired part of the article, then inserting therein a metallic ornament, preferably of openwork design, and finally applying pressure to said ornament to cause its edges to spread and to be retained in the said recess or the like.

4,831 of 1903.—J. A. O. WEX: *Drawers for Furniture and the Like.*

A draw for furniture and the like having a removable front side or closing flap so arranged that the movement of the said flap is effected by the impingement of a pin or button carried by the draw against a horizontal lever provided with a coupling-horn, the said lever having its fulcrum on a cross-piece of the casing and communicating by means of a hinged plate with a sliding plate hinged to the closing flap.

7,371 of 1903.—E. A. RAWLENCE: *Water and Other Closets.*

A closet pan having the rear part of greater height than the forward part, said pan being of approximate pear shape in plan, and having its upper side horizontal at the forward end, and upwardly inclined from said horizontal part to the rear.

6,189 of 1903.—H. MARTINI: *Roofing Tiles.*

The method of securing roofing tiles in position by means of a device formed as a hook at one end for engaging the tile, and at the other end as a nail for attachment to the roof, a loop being provided thereon for the more convenient handling thereof during insertion and tightening.

3,845 of 1903.—G. BODMER: *Ceramic Cover for Electric Cables.*

Cover for electric cables consisting of a plate of ceramic material, curved at a span higher than the diameter of the cable to be protected, enlargements at the ends of the plate and hollow spaces in the wall.

26,572 of 1902.—M. W. PHILLIPS: *Apparatus for Separating the Coarse and Fine Particles of an Insoluble Material such as Clay.*

In a device for separating particles of insoluble material, a screen of fibrous material, of finest mesh, and means for feeding said insoluble material thereto suspended in water, whereby the size of the mesh is reduced by absorption of water.

10,808 of 1902.—C. LANDALE: *Apparatus for Cutting and Sawing Slate, Stone, Metal, Wood, or other materials.*

A machine for cutting or sawing slate, stone, metal, wood, and other materials having a table for supporting the material, a reciprocating saw-frame suspended between uprights and provided with cutters or saws, and means for operating the said frame so that while one portion of the cutter is cutting, the other portion is removed out of the cut.

10,828 of 1902.—E. L. PEASE: *Construction of Roofing and Walling.*

This invention consists in the combination with slotted tubes of panels interlocked therewith by inset edges, and with or without stiffeners between the said slotted tubes, and of channel-irons extending along the eave of the roof and adapted to serve as stiffeners to the said eaves and as a means for draining water into tubular rafters.

MEETINGS.

SATURDAY, JUNE 6.

Royal Institution.—Professor Silvanus P. Thompson on "The 'De Magnete' and its Author." II. 3 p.m.

Incorporated British Institute of Certified Carpenters.—Visit to the headquarters of the London Fire Brigade, Southwark-street, S.E. 3 p.m.

MONDAY, JUNE 8.

Royal Institute of British Architects.—(1) Special general meeting, when the Chairman will move the following resolution, *i.e.*, "That, subject to the sanction of the Lords of the Privy Council, the words 'during the five years from the date of approval of this provision by the Privy Council' be omitted from the proviso of By-law 9"; (2) Business meeting (*a*) to receive the Report of the scrutineers appointed to direct the election of Council, Standing Committees, &c.; (*b*) a statement to be made as to the schedule of the conditions of contract. 8 p.m.

Society of Engineers.—Mr. E. R. Matthews on "Electric Light Stations: their Design and Arrangement." Illustrated by drawings of the Bridlington Electric Light Station. 7.30 p.m.

Incorporated Clerks of Works Association (Carpenters' Hall).—Paper by Mr. C. S. Freeman, "Decorative Electric Lighting." 8 p.m.

TUESDAY, JUNE 9.

Institution of Gas Engineers (*At Institution of Mechanical Engineers*).—Annual general meeting. 10.30 a.m.

WEDNESDAY, JUNE 10.

Institute of Builders (*At Society of Arts*).—Dr. Hubert Higgins on "The Seasoning and Preservation of Wood." Illustrated by lantern slides (Mr. W. F. King, Chairman). 8 p.m.

Institution of Gas Engineers.—Annual general meeting (Continued). 10 a.m.

Institute of Sanitary Engineers.—General Purposes and Finance Committee. 4.15 p.m. Election Committee. 5.15 p.m. Half-yearly general meeting. 7 p.m.

THURSDAY, JUNE 11.

Institution of Gas Engineers.—Annual general meeting (continued). 10 a.m.

South-Eastern Union of Scientific Societies (eighth annual congress, Town Hall, Dover).—Annual address by Sir H. H. Howorth, President-elect. 8 p.m.

FRIDAY, JUNE 12.

South-Eastern Union of Scientific Societies (annual congress continued).—Morning, afternoon, and evening meetings. Paper by the Rev. R. Ashington Bullen on "A Late Keltic Cemetery at Harlyn Bay."

SATURDAY, JUNE 13.

Architectural Association.—First summer visit, to Heathfield Park, Sussex. Train leaves Victoria Station at 11.15 a.m.

Building Trades' Exhibition, Royal Agricultural Hall.—Opening of the Exhibition. 1.30 p.m.

Incorporated Association of Municipal and County Engineers.—Eastern District meeting, Sudbury.

Edinburgh Architectural Association.—Annual excursion to Bamborough.

South-Eastern Union of Scientific Societies (annual congress, Dover, concluded).—Mr. A. T. Walmisley, Engineer, Dover Harbour Board, on "International Communication." 12 noon.

SOME RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

May 13.—By BELCHER, ADKIN, & BELCHER (at Wantage).

Goosey, Berks.—Nelson's Mead, part freehold and part long leasehold (with rights of sheep common)	£900
Charlton, Berks.—Truelock and 0a. 1r. 20p., f...	210
Two freehold paddocks, 8a. 1r. 37p.	398
Four freehold building sites	200
Various enclosures, 189a. 0r. 39p., f.	1,933

May 20.—By FOLEY, SON, & MUNDY (at Trowbridge).

Keevil, Wilts.—Pinckney Farm, 81a. 3r. 15p., f., y.r. 188*l.* 4*s.*	4,000
Wick Farm, 75a. 3r. 38p., f., y.r. 184*l.*	4,000
Wick Lease Farm, 80a. 1r. 39p., f., y.r. 225*l.*	4,000
Steeple Ashton, Wilts.—New House Farm, 43a. 0r. 11p., f., y.r. 86*l.* 15*s.*	1,735
Three enclosures of pasture, 6a. 3r. 26p., f.	250

May 21.—By VINTEN & SON (at Ramsgate).

Ramsgate, Kent.—9 to 15 (odd), Thanet-rd., f., y.r. 72*l.*	1,060
8, 11, and 12, Montefiore-cottages, f., w.r. 41*l.* 12*s.*	440
Trinity-pl., Montefiore Villa, with carrier's yard, stabling, &c., f., p.	690
21, Trinity-pl., w.r. 20*l.* 16*s.*	370
1 to 4, Francis-ter., also Francis Villa, f.	2,375
1 and 2, Canham-cottages, also Hockley, Luton, and Woburn Cottages, f.	540
16, Vale-rd., f., y.r. 19*l.* 10*s.*	320
90, High-st. (S.), f.	885
St. Peters, Isle of Thanet.—Dane Court Lodge, beneficial lease for 9 yrs., y.r. 65*l.*	150

May 22.—By BRADY & SON (at Manchester).

Haughton Dale, Lancs.—Two freehold cottages, y.r. 24*l.*	200
A freehold field, 4a. 0r. 30p., p.	300

By SPELMANS (at Diss).

Rushall, &c., Norfolk.—Norton's Farm, 236*a.* 0r. 3p., f.	2,000

By T. W. GASE & SON (at Diss).

Rushall, Norfolk.—The Lodge Farm, 104a. 3r. 2p., f.	1,050
Johnson's Farm, 61a. 2r. 6p., f.	600
Moulton St. Michael, Norfolk.—A freehold occupation, 16a. 1r. 17p.	300
Four enclosures, 10a. 1r. 23p., f.	145

By FORTESCUE & CO.

Wandsworth.—196, Merton-rd., u.t. 48½ yrs., g.r. 5*l.*, y.r. 28*l.*	245
1, Elsenham-st., f., e.r. 32*l.*	390
Battersea.—62 and 64, Este-rd., u.t. 56½ yrs., g.r. 8*l.*, w.r. 62*l.* 8*s.*	400

By HIGGINS & SON.

Hampstead.—118, Adelaide-rd., u.t. 42½ yrs., g.r. 4*l.*, y.r. 75*l.*	300
25, Rosslyn Hill, u.t. 45½ yrs., g.r. 12*l.* y.r. 100*l.*	2,010
Haverstock Hill.—No. 166, u.t. 47½ yrs., g.r. 15*l.*, e.r. 85*l.*	615

By REYNOLDS & EASON.

Clapton.—19 and 21, Chatsworth-rd. (S), f., y.r. 80*l.*	1,615
30, 32, and 34, Lockhurst-st., f., w.r. 167*l.* 14*s.*	1,300

By A. J. SHEFFIELD.

Whitechapel.—187 (The Pavilion Stores) and 191, Whitechape-rd. (S.); also 1a, 1b, 1c, 2, 3, and 4, Pavilion-yard, in rear, u.t. 34 yrs., g.r. 295*l.*, y.r. 548*l.* 12*s.*	400
Manor Park.—39, Morris-av., f., y.r. 31*l.* 4*s.*	290

By S. WALKER & SON.

Sydenham.—Longton-av., Cranleigh and Highfield, f., y.r. 112*l.* 10*s.*, subject to fee farm rents of 12*l.* 12*s.* £1,170

May 23.—By WILLSON & PHILLIPS (at Southend).

Southend, Essex.—Alexandra-st. (restaurant and shop), with goodwill, beneficial lease for 13 yrs., y.r. 100*l.*; also 11, 12, and 13, Market-pl., beneficial lease for 13 yrs., y.r. 80*l.* 12*s.* ... 1,000

Leigh-rd., Field House, f., p. 1,020

1 and 2, Florence-villas, y.r. 64*l.*, also stables in rear, f. 1,190

Westcliff Park Drive, three freehold villas and two plots of land adjoining 1,100

Prittlewell, Essex.—Priory-av., ten plots of land, f. 403

Prittlewell-st., 1 to 6, Selby-villas, f., w.r. 124*l.* 16*s.* 1,820

May 25.—By HY. CHAPMAN & CO.

Edgware-rd.—4, Church-st. (S), f., y.r. 50*l.* 800

By S. CHETWOOD.

Pentonville.—60, Penton-st. (S), u.t. 12½ yrs., g.r. 28*l.*, w.r. 78*l.*; 1A and 2A, Chapel-st. (S), u.t. 33½ yrs., g.r. 20*l.*, y.r. 85*l.* 8*s.* 300

1 and 2, Chapel-st. (S), u.t. 33½ yrs., g.r. 20*l.*, y.r. 155*l.* 1,060

Waltham Cross, Essex.—1 and 2, Gothic-villas, u.t. 65 yrs., g.r. 10*l.*, y.r. 70*l.* 675

31, Eleanor Cross-rd., u.t. 65 yrs., g.r. 2*l.*, y.r. 30*l.* 320

Eleanor Cross-rd. (rear of), a range of stabling and coachhouses, u.t. 65 yrs., g.r. 1*l.*, y.r. 12*l.* 165

By C. RAWLEY CROSS & CO.

Shepherd's Bush.—Uxbridge-rd., corner freehold site, building lease for 99 yrs. (with option of purchase), let at per annum 102

9, Netherwood-rd. (S), f., y.r. 60*l.* 955

9, Rylett-cres., u.t. 76 yrs., g.r. 10*l.*, e.r. 55*l.* .. 475

By ELLIOTT, SON, & BOYTON.

Oxford-st.—45, South Moulton-st. (S), u.t. 58½ yrs., g.r. 3*l.*, y.r. 280*l.* 3,100

By HERRING, SON, & DAW.

Clapham.—King's-rd., Seacombe and 1½ a., u.t. 21½ yrs., g.r. 30*l.*, e.r. 120*l.* 605

Streatham.—High-rd., Granville Lodge and 1 a., u.t. 42½ yrs., g.r. 30*l.*, e.r. 225*l.* 1,450

By KEMSLEYS'.

Epping, Essex.—Thornwood, The Shubbery and 15 a. 1 r. 2 p., f. and c.p. 2,000

Church-rd., two enclosures of land, 7 a. 2 r. 23 p., c. 400

Main road, enclosure of land, 1 a. 2 r. 4 p., f. .. 195

Epping, Essex.—Bell-common, enclosure of land, 6a. 1 r. 19 p., f. 440

Woodford.—Eastwood-rd., corner plot of building land, f. 245

By NOTLEY & CO.

Hoxton.—New North-rd., Crown Wharf, area 19,650 ft., u.t. 54½ yrs., g.r., &c., 184*l.*, y.r. 425*l.* 2,600

By SHAW & LEE (at Brixton).

Brixton.—4, Holmewood-rd., u.t. 89 yrs., g.r. 7*l.*, e.r. 43*l.* 490

4, Havter-rd., u.t. 63 yrs., g.r. 10*l.*, e.r. 55*l.* 450

By FOLEY, SON, & MUNDY (at Bradford-on Avon).

Turleigh, Wilts.—Turleigh House and 5 a. 2 r. 27 p., f., p. 2,300

Rose Cottage and 3 a. 2 r. 16 p., f., y.r. 14*l.* 540

Piece of pasture, 1 a. 1 r. 6 p., f. 120

Two freehold cottages 122

Fee Farm Rent Charges of 73*l.* 15*s.* per annum. 1,820

Winsley, Wilts.—Haugh Farm, 123 a. 1 r. 26 p., f., y.r. 125*l.* 2,350

Dean Bottom Land, 8 a. 0 r. 2 p., f., ... 360

By JAS. WALKER (at Retford).

Darlton, Notts.—Freehold farmhouse and 79 a. 0 r. 15 p. 1,582

Ordsall, Notts.—Far Hopyard Close, 4 a. 3 r. 2 p., f. 357

May 26.—By BEARD & SON.

Regent-street.—31, Carnaby-st., and 24, Foubert's-pl. (S.) f. y.r. 110*l.* 3,570

Harlesden.—Craven Park-rd., i.g.r. 46*l.* 10*s.*, u.t. 61 yrs., g.r. 6*l.* 10*s.* 810

Fulham.—293, New King's-rd. (S.), f., y.r. 60*l.* .. 1,000

Clapham.—35, Turret-gr., y.r. 38*l.*; also i.g.r. 4*l.* 4*s.*, u.t. 20½ yrs., g.r. 8*l.* 8*s.* 220

Camberwell.—28, Vicarage-rd., u.t. 47 yrs., g.r. 8*l.* 5*s.*, y.r. 54*l.* 12*s.* 320

By JOHN BOTT & SONS.

Peckham.—Rye-la., f.g.r. 12*l.*, and a peppercorn g.r., reversion in 4 yrs. 7,000

Merton.—19 to 27 (odd), Pincott-rd., u.t. 69 yrs., g.r. 16*l.* 5*s.*, w.r. 84*l.* 10*s.* 410

By H. H. COLLIER.

City of London.—62, Fleet-st. (S), f., y.r. 310*l.* .. 9,950

By LEOPOLD FARMER & SONS.

Hampstead.—35, Gascony-av., u.t. 78 yrs., g.r. 10*l.* 10*s.*, e.r. 50*l.* 405

Kilburn.—17, Salusbury-rd., u.t. 59½ yrs., g.r. 7*l.* 10*s.*, w.r. 62*l.* 8*s.* 355

Westbourne Park.—12, Elcom-st., u.t. 64 yrs., g.r. 8*l.*, w.r. 65*l.* 255

By MARLER & MARLER.

Brixton.—Milkwood-rd., i.g.r's 80*l.* 10*s.*, u.t. 63 yrs., g.r. 2*l.* 1,500

Holloway.—17 and 19, Annesley-rd., u.t. 74 yrs., g.r. 11*l.*, w.r. 59*l.* 16*s.* 360

By E. PENNINGTON.

Teddington.—Teddington Park-rd., Fairlight, and one-third of an acre, f., y.r. 60*l.* 1,000

Richmond.—11, Jocelyn-rd., u.t. 65 yrs., gr. 8*l.* 8*s.*, e.r. 45*l.* 440

By RUTLEY, SON, & VINE.

St. Pancras.—87 and 97 (odd), Euston-st., u.t. 16 yrs., g.r. 100*l.*, w.r. 475*l.* 585

Hampstead-rd.—3, Harrington-sq., u.t. 38 yrs., g.r. 11*l.*, y.r. 75*l.* 725

By FRED. WARMAN.

Canonbury.—114 and 116, St. Paul's-rd., u.t. 21 yrs., g.r. 12*l.*, y.r. 109*l.* 705

Hornsey Rise.—5, Hornsey Rise-gdns., u.t. 79 yrs., g.r. 12*l.* 12*s.*, p. 750

Crouch End.—48, Carysfort-rd., u.t. 92 yrs., g.r. 6*l.*, e.r. 45*l.* 405

Muswell Hill.—Alexandra Park-rd., Rossleigh and Hill View, u.t. 90 yrs., g.r. 21*l.*, e.r. 120*l.* 1,075

Wood Green.—28, Eastern-rd., u.t. 92 yrs., g.r. 6*l.* 10*s.*, e.r. 45*l.* 500

Camberwell.—69 and 71, Dalwood-st., with manufacturing premises in rear, u.t. 16 yrs., g.r. 7*l.* 12*s.*, y.r. 55*l.* £350

By ELLIOTT, ELLIS, & CO. (at Plymouth).

Brixton, Devon.—Hareston Estate, 150 acres, f... 6,000

By BALLARD & MARSH (at Twickenham).

Twickenham, Middx.—Richmond-rd., two copyhold shops, y.r. 52*l.* 450

Norbiton, Surrey.—2 and 3, Coombe-rd., f., w.r. 36*l.* 8*s.* 325

Teddington Middx.—Riverside Villas, f.g.r. 14*l.*, reversion in 965 yrs. 330

Swiss Cottages, f.g.r. 6*l.*, reversion in 64 yrs. 150

By WM. ROLFE (at Masons' Hall Tavern).

Walworth.—Montpelier-st., The Walworth Empire and Music Hall, y.r. 120*l.*; also i.g.r. 1*l.* 10*s.*, u.t. 13 yrs., g.r. 15*l.* 485

Wandsworth.—32 and 33, Belle Vue-rd. (S.), f., y.r. 110*l.* 1,670

By MATTHEW MILES (at Masons' Hall Tavern).

Clapham.—Old Town, the Sun p.-h., u.t. 12½ yrs., y.r. 120*l.*, with goodwill 2,000

By WINCH & SONS (at Ashford).

Tenterden, &c., Kent.—The Gibbet Farm, 229 a. 1 r. 30 p., f. 3,750

By FOX & VERGETTE (at Peterboro').

Peterborough, Northants. — Thorpe-rd., Westwood House, and 34 a. 2 r. 21 p., f. 8,750

MAY 27.—By HEPPER & SONS (at Doncaster).

Temple Hirst, Yorks.—Temple Hirst Manor Farm, 336 a. 3 r. 7 p., f. 8,300

Fenwick, Yorks.—Went Farm, 256 a. 0 r. 23 p., f. Haggs Farm, 213 a. 0 r. 24 p., f. 4,200

May 28.—By BURLEY & BRACKENBURY.

Bloomsbury.—20, Silver-st., u.t. 26½ yrs., g.r. 5*l.*, w.r. 93*l.* 16*s.*; also, 14, Gilbert-st., u.t. 34 yrs., g.r. 5*l.*, w.r. 114*l.* 8*s.* 2,825

Ealing.—85, Madeley-rd., u.t. 82 yrs., g.r. 16*l.*, y.r. 120*l.* 725

By H. V. CHEW.

Buckhurst Hill.—Victoria-rd., Longbridge, f., e.r. 120*l.* 1,500

By J. W. COADE.

Bloomsbury.—10, Upper Woburn-pl., u.t. 17½ yrs., g.r. 16*l.*, y.r. 110*l.* 1,450

By EYDMANN & SON.

Acton.—243, Acton-la., with laundry, f., y.r. 60*l.* 730

By HOOKER & WEBB.

Croydon.—30, Elmwood-rd. and ½ an acre, f., p... 555

By HUNTER, ROBERTS, & CO.

Sydenham.—46, Rowland-gr., u.t., 53½ yrs., g.r. 5*l.*, w.r. 24*l.* 14*s.* 1,350

By C. C. & T. MOORE.

Hackney.—5, Meynell-rd., u.t. 52 yrs., g.r. 10*l.*, e.r. 50*l.* 125

Mile End.—135, Canal-rd., u.t. 27½ yrs., g.r. 3*l.* 12*s.* 6*d.*, w.r. 31*l.* 4*s.* 550

By NEWBON, EDWARDS, & SHEPHARD.

Notting Hill.—94, Ladbroke-gr., f., y.r. 75*l.* 175

34, Elgin-av., f., y.r. 65*l.* 1,000

Haggerston.—Gt. Cambridge-st., f.g.r. 10*l.*, reversion in 25 yrs. 770

112 and 114, Gt. Cambridge-st. (S), f., y.r. 60*l.* .. 405

Gt. Cambridge-st., Hope-wharf, area 9,000 ft., f., e.r. 220*l.* 860

108, Gt. Cambridge-st., f., w.r. 57*l.* 4*s.* 3,025

2 and 4, Queen's-rd., u.t. 40 yrs., w.r. 127*l.* 8*s.*; also Baltic-wharf in rear, u.t. 40 yrs., g.r. 9*l.* 490

14 and 16, Queen's-rd., u.t. 41 yrs., g.r. 9*l.*, w.r. 109*l.* 4*s.* 675

36, 38, and 40, Pownall-rd., u.t. 40 yrs., gr. 10*l.*, w.r. 124*l.* 16*s.* 620

Holloway.—28, Yonge-pk., u.t. 48 yrs., g.r. 3*l.*, e.r. 50*l.* 820

82 and 84, George's-rd., f., w.r. 52*l.* 520

Highbury.—109 and 111, Gillespie-rd., u.t. 74 yrs., g.r. 10*l.*, y.r. 56*l.* 350

Leytonstone.—Woodhouse-rd., a plot of building land, f. 440

By J. C. PLATT.

Hammersmith.—1, 1a, 3, 5, and 7, Bridge-rd. (S.), f., y.r. 259*l.* 2*s.* 230

361 and 363, King-st. (S.), and 1 to 5, White Hart Cottages, area 3,891 ft., f., e.r. 243*l.* .. 5,320

Notting Hill.—High-st., f.g. rents 150*l.*, reversion in 63 yrs. 3,800

Willesden.—Evelyn-ter., f.g.r. 25*l.*, reversion in 95 yrs. 4,335

Acton-lane, f.g.r. 12*l.*, reversion in 95 yrs. 590

Disraeli-rd., f.g.r. 15*l.*, reversion in 95 yrs. 285

By WM. STEVENS.

Holloway.—47, 47, and 55, George's-rd., f., w.r. 46*l.* 16*s.* 350

Hackney.—41 and 43, Loddiges-rd., u.t. 44 yrs., g.r. 8*l.* 10*s.*, w.r. 79*l.* 6*s.* 465

60, 62, and 64, Loddiges-rd., u.t. 44 yrs., g.r. 10*l.* 10*s.*, w.r. 104*l.* 670

35, Rendlesham-rd., f., y.r. 36*l.* 560

Islington.—21 and 23, Kingsbury-rd., u.t. 49 yrs., g.r. 12*l.* 12*s.*, y.r. 76*l.* 605

By STIMSON & SONS.

Brondesbury.—50, Plympton-rd., u.t. 87 yrs., g.r. 9*l.*, e.r. 50*l.* 310

Maida Vale.—11, 13, 15, and 22, Elgin-ter., u.t. 58½ yrs., g.r. 22*l.*, y.r. 172*l.* 1,615

Paddington.—12, Shelden-st. (S), u.t. 34½ yrs., g.r. 10*l.*, y.r. 50*l.* 550

Balham.—14, Culmore-rd., u.t. 60 yrs., g.r. 7*l.*, e.r. 42*l.* 300

Tooting.—2, Chetwode-rd., u.t. 76½ yrs., g.r. 6*l.* 12*s.* 6*d.*, w.r. 39*l.* 270

Battersea.—65 and 67, Basnett-rd., u.t. 66 yrs., g.r. 10*l.*, w.r. 68*l.* 18*s.* 450

Wandsworth.—20 and 22, Standen-rd., u.t. 77½ yrs., g.r. 8*l.*, w.r. 55*l.* 18*s.* 320

38 and 39, Swaffield-rd., u.t. 83½ yrs., g.r. 10*l.* 10*s.*, w.r. 62*l.* 8*s.* 440

Walworth.—108, Westmoreland-rd., u.t. 49 yrs., g.r. 5*l.* 5*s.*, w.r. 59*l.* 16*s.* 300

Camberwell.—12, Southampton-st. (S.), f., y.r. 28*l.* 415

7 and 8, Vicarage-rd., u.t. 47 yrs., g.r. 14*l.*, e.r. 70*l.* 685

Peckham.—195, Southampton-st., with laundry, f., y.r. 36*l.* 515

Lewisham.—60, Limes-gr., u.t. 51½ yrs., g.r. 5*l.*, e.r. 32*l.* 280

Poplar.—44 and 46, Findhorn-st., u.t. 70 yrs., g.r. 5*l.* 10*s.*, w.r. 52*l.* 475

By J. A. & W. THARP.

Snaresbrook.—Sylvan-rd., Carlton Lodge, f., y.r. 60*l.* £775

Bethual Green.—7, Tavistock-st., f., w.r. 23*l.* 8*s.* 7, 8, and 9, St. John-st., (S), u.t. 56½ yrs., g.r. 9*l.*, w.r. 109*l.* 4*s.* 210

Barkingside, Essex.—Horns-rd., two plots of freehold land 950

Battersea.—124, Latchmere-rd., u.t. 84 yrs., g.r. 7*l.* 10*s.*, y.r. 37*l.* 385

Canning Town.—74 to 92 (even), Scott-st., u.t. 63½ yrs., g.r. 31*l.* 10*s.*, w.r. 182*l.* 360

Ilford, Essex.—Beisborough-rd., f.g.r's. 10*l.* 10*s.*, reversion in 94 yrs. 650

May 29.—By BOWDITCH & GRANT.

Croydon.—96, Windmill-rd. (club premises), f., y.r. 40*l.* 250

Selhurst.—5 and 7, Farnley-rd., u.t. 86 yrs., g.r. 15*l.*, e.r. 64*l.* 600

By DAVID BURNETT & CO.

Balham.—40 and 42, Blandfields-st. (S), part f. and part u.t. 93 yrs., g.r. 8*l.*, y.r. 50*l.* 500

South Kensington.—52, Redcliffe-rd., u.t. 58 yrs., g.r. 10*l.*, e.r. 60*l.* 600

By DOLMAN & PEARCE.

Kentish Town.—17, Lamble-st. (S), u.t. 45 yrs., g.r. 7*l.*, y.r. 40*l.* 525

By DUNCAN & KIMPTON.

Marylebone.—38 and 39, Carlisle-st. (S), u.t. 18 yrs., g.r. 11*l.* 3*s.*, w.r. 119*l.* 12*s.* 300

3, 4, 5, 6, 7, and 9, Orcus-st., u.t. 18 yrs., g.r. 62*l.*, w.r. 175*l.* 10*s.* 215

Tooting.—High-st., a block of building land, f. .. 275

Trevelyan-rd., a block of building land, f. 1,030

Mellison-rd., Dymchurch Cottage, f., e.r. 48*l.* .. 960

Mellison-rd., a plot of building land, f. 500

By SELFE, BALL, SMITH, & CO.

Bromley-by-Bow.—1 to 7, Tidey-st., f., w.r. 207*l.* 7*s.* 205

Forest Gate.—44 to 54 (even), Strone-rd., f., w.r. 182*l.* 2,010

1,800

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.		
Hard Stocks	1 15 0	per 1,000 alongside, in river.	
Rough Stocks and Grizzles.....	1 12 0	,,	,, ,,
Facing Stocks....	2 12 0	,,	,, ,,
Shippers	2 5 0	,,	,, ,,
Flettons	1 7 6	,,	at railway depôt
Red Wire Cuts ..	1 12 0	,,	,, ,,
Best Fareham Red	3 12 0	,,	,, ,,
Best Red Pressed Ruabon Facing	5 0 0	,,	,, ,,
Best Blue Pressed Staffordshire ..	4 5 0	,,	,, ,,
Do. Bullnose	4 11 0	,,	,, ,,
Best Stourbridge Fire Bricks	4 8 0	,,	,, ,,
GLAZED BRICKS.			
Best White and Ivory Glazed Stretchers.....	13 0 0	,,	,, ,,
Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats.....	17 0 0	,,	,, ,,
Double Stretchers	19 0 0	,,	,, ,,
Double Headers..	16 0 0	,,	,, ,,
One Side and two Ends.....	19 0 0	,,	,, ,,
Two Sides and one End	20 0 0	,,	,, ,,
Splays, Chamfered, Squints.....	20 0 0	,,	,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats.....	14 0 0	,,	,, ,,
Double Stretchers	15 0 0	,,	,, ,,
Double Headers..	14 0 0	,,	,, ,,
One Side and two Ends.....	15 0 0	,,	,, ,,
Two Sides and one End	15 0 0	,,	,, ,,
Splays Chamfered, Squints.....	14 0 0	,,	,, ,,
Second Quality White and Dipped Salt Glazed	8 0 0	,,	less than best.
Thames and Pit Sand	6	9	per yard, delivered.
Thames Ballast	6	0	,, ,,
Best Portland Cement	30	0	per ton, delivered.
Best Ground Blue Lias Lime..	20	6	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 10*s.* 6*d.* per yard, delivered.

Stourbridge Fire-clay in sacks 27*s.* 6*d.* per ton at rly. dpt.

STONE.

	s. d.		
Ancaster in blocks	1 11	per ft. cube, deld	rly. depôt.
Bath ,, ...	1 7	,,	,,
Farleigh Down Bath ..	1 8	,,	,,
Beer in blocks	1 6	,,	,,
Grinshill ,, ...	1 10	,,	,,
Brown Portland in blocks	2 2	,,	,,
Darley Dale in blocks..	2 4	,,	,,
Red Corsehill ,,	2 5	,,	,,
Closeburn Red Freestone	2 0	,,	,,
Red Mansfield ,,	2 4	,,	,,

[*See also page* 603.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be delivered
*Grammar School Buildings, Head-Masters' Residence...	Governors Magdns Grammar Schl.	25*l.* 15*l.* and 10*l.*	July 15

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Eleven Houses, Cwmaman	Aberneol Building Club	Llewellin & Co., Architects, Aberdare	June 9
Chimney Shafts, Duff's-court	Bridgewater Town Council	Borough Surveyor, Municipal Buildings, Bridgewater	do.
Whinstone Road Metal	Gosforth U.D.C.	C. J. Baff, Surveyor, Gosforth	do.
Retaining Wall, Littleborough	Lancs County Council	W. H. Schofield, Surveyor, County Offices, Preston	do.
Boiler House, &c., at Gasworks, New Wortley	Leeds Corporation	R. H. Townsley, Municipal Buildings, Leeds	do.
Cast-iron Pipes	Southampton Corporation	J. A. Crowther, Engineer, Southampton	do.
Drainage Works, Somerville-road	Birmingham Corporation	J. Price, Surveyor, Council House, Birmingham	do.
Granite Road Metal	Brentford U.D.C.	N. Parr, Surveyor, Brentford	do.
Street Works, Naylor-street	Crewe Town Council	G. E. Shore, Surveyor, Crewe	do.
School Buildings, King Edward-road, Nuneaton	The Governors	H. Quick, Architect, 64, Hertford-street, Coventry	do.
Alterations to Workhouse	Pwllheli United Guardians	R. G. Thomas, Architect, Menai Bridge	do.
Chapel, Resolven, Wales	.....	W. B. Rees, Architect, 37, St. Mary-street, Resolven	do.
House, Skelmanthorpe, Yorks	.....	J. Berry, Architect, 3, Market-place, Huddersfield	do.
Two Houses, Buttershaw, Yorks	.....	Brayshaw & Dixon, Architects, Buttershaw	do.
Church and Schools, Purston, near Pontefract	.....	Garside & Pennington, Architects, Pontefract	do.
Public-house, &c.	.....	Jennings & Dutholt, Architects, 6, Claremont-place, Dover	do.
*Stone Paving Carriage Ways and Footways	Corporation of London	The Engineer, Guildhall, E.C.	do.
*200 tons of 6 in. Granite	Sheerness U.D.C.	Council's Surveyor, Council's Offices, Trinity-road, Sheerness	do.
*Brick and Stoneware Pipe Sewers	City of Westminster	Works Department, Westminster City Hall, Charing Cross-rd., W.C.	June 10
*Cast Cement Kerbing	Kent County Council	County Surveyor, 86, Week-street, Maidstone	do.
Isolation Cottage at Infirmary, Preston	.....	F. E. Dixon, Civil Engineer, 49, Lune-street, Preston	do.
Additions to Police Station, Altrincham, Cheshire	.....	H. Beswick, Architect, Newgate-street, Chester	do.
House, Main-street, Derrygonnelly, Ireland	.....	D. Elliott, Derrygonnelly	do.
Sewerage Works, &c., Durham Massey	Bucklow R.D.C.	J. M. D. M'Kenzie, Engineer, 7, Market-place, Altrincham	do.
Grand Stand, &c.	Directors Garryowen Athletic Grnds	B. E. F. Sheehy, Architect, 57, George-street, Limerick	do.
Tenements, &c., Consett, Durham	Mr. W. Best	T. H. Murray, Architect, Consett, Co. Durham	do.
Granite Setts	Southampton Corporation	J. A. Crowther, Engineer, Southampton	do.
Hospital, at Workhouse	Rathdown United Guardians	P. Cunniam, Workhouse, Loughlinstown	do.
Additions to Workhouse, Dunstable	Luton Guardians	G. R. Brown & Son, Architects, Luton	do.
Kerbing, &c., Maidstone	Kent County Council	F. W. Ruck, County Surveyor, 86, Week-street, Maidstone	do.
Store Premises and Houses, East Ardsley	Morley Indus. Co-op. Soc., Ltd.	R. Castle & Son, Architects, Cleckheaton, Yorks	June 11
Street Works, Whitehill-street	Stockport Corporation	J. Atkinson, Civil Engineer, St. Petersgate, Stockport	do.
Paving Works (9,000 square yards.)	Glasgow Corporation	J. Lindsay, City Chambers, Glasgow	do.
Making Up Cromwell-road	Cheshunt U.D.C.	R. H. Jeffes, Engineer, Cheshunt	do.
Road Materials	Houghton-le-Spring R.D.C.	D. Balfour, Civil Engineer, Houghton-le-Spring	do.
Chimney Shaft, Western Shore	Southampton Corporation	J. A. Crowther, Engineer, Southampton	do.
Chapel, Cwmpark, Wales	Comm. of Bethel Baptist Church	J. Rees, Architect, Pentre	do.
*Additional Bldgs. at Isolation Hospital, Oak Fencing	Wanstead U.D.C.	Council's Surveyor, Wanstead, N.E.	do.
Two Hundred and Fifty Houses, Aber, Bargoed	Powell-Duffryn Coal Company	D. Kenshole, Architect, Hanbury-road, Bargoed	June 12
Alterations to Workhouse Mortuary, &c.	Aysgart Guardians	W. E. M. Winn, Union Offices, Askrigg	do.
Station Buildings, Braywick-road	Maidenhead Town Council	P. Johns, Civil Engineer, Guildhall, Maidenhead	do.
Paving Works, Osborne-street, &c.	Preston Corporation	Borough Surveyor, Town Hall, Preston	do.
Schools, Thirsk	.....	T. Stokes, Architect, Thirsk	do.
Three Houses, Canning-street, Ton Pentre	Mr. T. R. Thomas	W. D. Morgan, Architect, Pentre	do.
Shop, &c., Corporation-road, Workington	.....	W. G. Scott & Co., Architects, Workington	do.
Additional Schools to Wesleyan Church, Thirsk, Yorks	.....	H. Stokes, Architect, Thirsk	do.
Two Houses, Peuponds, Camborne, Cornwall	.....	W. Raven, Praze, Crowan	do.
Church, Soundwell, near Bristol	.....	H. M. Bennett, Architect, 36, Corn-street, Bristol	do.
House, Dunphail, N.B.	.....	J. Forrest, Architect, Forres	June 13
Additions to Workhouse Infirmary, Craiglockhart	Edinburgh Parish Council	A. Ferrier, Parish Council Offices, Edinburgh	do.
Creamery	Lismore (Ireland) Co-op. Society	W. Hartnett, Chapel-street, Lismore	do.
Well Sinking, Crossgar, Ireland	Downpatrick R.D.C.	R. L. Morrow, Council Offices, Downpatrick	do.
Inn, Caldcotes	Carlise New Brewery Co., Ltd.	J. Leslie, Architect, 71, Broad-street, Carlisle	do.
*Cooking & Service Fittings, Cartwright Memorial Hall	Bradford Corporation	Town Clerk, Town Hall Bradford	do.
*Electric Lighting, Cartwright Memorial Hall	do.	do.	do.
Two Cottages, near Fordingbridge	.....	F. Bath, Architect, Salisbury	June 14
Additions to Farm Buildings, Trowbridge	.....	Foley & Co., Surveyors, Trowbridge	June 15
Additions to Hospital, Monsall	Manchester Corporation	City Architect, Town Hall, Manchester	do.
Additions to Business Premises, Merthyr Tydfil	Messrs. R. T. Jones & Co.	C. M. Davies, Architect, 112, High-street, Merthyr	do.
Additions to Electricity Station	Coventry Corporation	J. E. Swindlehurst, Engineer, Coventry	do.
House, &c., Antrim	Messrs. D. Ross & Sons	F. E. Lockwood, Architect, 91, Victoria-street, Belfast	do.
Five Houses, Cromac-square, Belfast	Mr. J. J. M'Kee	T. Pentland, Architect, 35, High-street, Belfast	do.
*Sewerage Works, &c., Melton Constable	Walsingham R.D.C.	Council's Engineer, Bank Plain, Norwich	June 16
Rebuilding the Buller's Arms' Inn, Brixham, Devon	Mr. J. W. Chapman	F. W. Vanstone, Architect, Paington	do.
*Wood Paving	Willesden District Council	Council's Engineer, Public Offices, Dyne-road, Kilburn, N.W.	do.
*Road Making and Paving	do.	do.	do.
*Road Making	Acton District Council	Council's Surveyor, 242, High-street, Acton, W.	do.
*Block of Tenement Dwellings, Edgware-road	St. Marylebone Borough Council	Town Hall, Marylebone-lane, Oxford-street, W.	June 17
*Enlargement of Operating Room	Kensington Guardians	Steward of the Infirmary, Marloes-road, Kensington, W.	June 18
*New Post Office, Lincoln	Commissioners of H.M. Works, &c.	H.M. Office of Works, Storey's Gate, S.W.	June 19
*Isolation Hospital, &c., Stretton Sugwas	Hereford R.D.C.	E. G. Davies, Architect, 7, Bridge-street, Hereford	do.
*Brick Sewers	Tottenham, &c., Jnt. Drainage Com.	Council's Engineer, 712, High-road, Tottenham	June 20
House, Houghton-le-Spring, Durham	.....	J. P. Tulip, 6, William-street, Houghton-le-Spring	do.
Bridge Works, Worthing	Mitford R.D.C.	W. M. Barton, Guildhall, East Dereham	do.
*New Laundry, &c., at Smallburgh Workhouse	Smallburgh Union	F. Davies, Solicitor, North Walsham	do.
*New Schools, Forest Gate	The Committee	St. Antony's, 58, Kedive-road, Forest Gate	do.
*Cartshed, Office, Bothy, &c., Wandsworth Park	London County Council	Architect's Department, 18, Pall Mall East, S.W.	June 22
*Retort House, Coal Stores, and other Buildings	British Gas Light Co., Ld. (Norwich)	Engineer, Bishop Bridge, Norwich	do.
Sewers, &c.	Belper U.D.C.	C. J. Lomax, Civil Engineer, 37, Cross-street, Manchester	do.
*Erection of University College, Sheffield	The Committee	Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield	June 23
Laying 40 miles Cast-iron pipes	Bridgwater R.D.C.	E. D. & H. Marten, Engineers, Cheltenham	do.
*New Sorting Office at Upper Edmonton	H.M. Works	H.M. Office of Works, Storey's Gate, London, S.W.	do.
*Corrugated Iron Tram Car Shed	County Borough of West Ham	Borough Engineer, Town Hall, West Ham, E.	do.
*Broken Granite and Granite Chips	North Walsham U.D.C.	Council's Surveyor, North Walsham	June 25
*High Pressure Rising Main, &c.	Goring, &c., Dist. Gas & Water Co.	G. H. Robus, Mansion House Chambers, E.C.	June 26
*Cottage Dwellings, Croydon	London County Council	Architects Department, 19, Charing Cross-road, W.C.	June 30
Schools, &c., Pembroke Dock	.....	G. Morgan & Sons, Architects, 24, King-street, Carmarthen	do.
Galleries at Bethany, Baptist Chapel, Pembroke Dock	St. Pancras Female Orphanage, &c.	do.	do.
*New Orphanage	Lichfield Brewery Co., Ltd.	S. G. Goss, Architect, 3, Broad-street-buildings, E.C.	July 3
Licensed Premises, Hopwas, Tamworth	Mr. J. V. Balmer	C. Owen, Architect, Arcade Balcony, Walsall	No date.
Shops and Stores, Main-street, Bognor	Mr. F. J. Crossfield	J. Brice & Son, Bangor	do.
Stabling, &c., Todbusk, Ulverston	Saltburn, &c., Gas Co.	Settle & Farmer, Architects, Ulverston	do.
Alterations to House, West Dyke-road, Redcar	.....	Moore & Archibald, 27, Albert-road, Middlesbrough	do.
Additions to Market Hall, Redhill	Brightside&Carbrook Co-op.Soc.,Ld.	Clayton & Black, 152, North street, Brighton	do.
Store Premises, Cricket Inn-road, Sheffield	.....	H. Webster, Architect, Norfolk-row, Sheffield	do.
Church, Spring-street, Hull	.....	Brodrick & Co., Architects, 77, Lowgate, Hull	do.
Church, Grangetown, near Middlesbrough	.....	do.	do.

[See also next page.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Harrogate, &c., Jnt. Iso. Hosp. Com.	3l. per week	June 10
*Superintendent for Repairs	School Board for London	350l.	June 20

Those marked with an asterisk (*) are advertised in this Number. *Competitions*, iv. *Contracts*, iv. vi. viii. & x. *Public Appointments*, xviii.

PRICES CURRENT (*Continued*).

STONE.

YORK STONE—*Robin Hood Quality.*

	s.	d.	
Scappled random blocks 6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	10	per ft. cube, deld. rly. depôt.
	2	3	per foot super. ,,
6 in. Rubbed two sides Ditto, Ditto	2	6	,, ,,
3 in. Sawn two sides slabs (random sizes)	0	11½	,, ,,
2 in. to 2½ in. Sawn one side slabs (random sizes)	0	7½	,, ,,
1½ in. to 2 in. ditto, ditto	0	6	,, ,,
BEST HARD YORK— Scappled random blocks 6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	3	0	per ft. cube ,,
	2	8	per ft. super. ,,
6 in. Rubbed two sides Ditto	—		,, ,,
3 in. sawn two sides slabs (random sizes)	1	2	,, ,,
2 in. self-faced random flags	0	5	,, ,,
Hopton Wood (Hard Bed) in blocks			per ft. cube.
,, ,, ,, 6 in. sawn both sides landings			rly. depôt. 7 per ft. super. deld. rly. depôt
,, ,, ,, 3 in. do.	1	2½	,, ,,

SLATES.

in. in.	£	s.	d.	
20 x 10 best blue Bangor	13	2	6	per 1000 or 1200 at ry. dep.
20 x 12 ,, ,, ,,	13	17	6	,, ,,
20 x 10 best seconds ,,	12	15	0	,, ,,
20 x 12 ,, ,, ,,	13	10	0	,, ,,
16 x 8 best ,,	7	0	0	,, ,,
20 x 10 best blue Portmadoc	12	5	0	,, ,,
16 x 8 best blue Portmadoc	6	5	0	,, ,,
20 x 10 best Eureka unfading green	15	2	6	,, ,,
20 x 12 ,, ,,	17	2	6	,, ,,
18 x 10 ,, ,,	12	10	0	,, ,,
16 x 8 ,, ,,	10	5	0	,, ,,
20 x 10 permanent green	11	0	0	,, ,,
18 x 10 ,, ,,	9	5	0	,, ,,
16 x 8 ,, ,,	6	10	0	,, ,,

TILES.

	s.	d.	
Best plain red roofing tiles	42	0	per 1,000, at rly. depôt.
Hip and valley tiles	3	7	per doz. ,, ,,
Best Broseley tiles	50	0	per 1,000 ,, ,,
Do. Ornamental Tiles	52	6	,, ,, ,,
Hip and valley tiles	4	0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000 ,, ,,
Do. ornamental Do.	60	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	0	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes)	51	0	per 1,000 ,, ,,
Do. Ornamental Do.	54	6	,, ,, ,,
Hip tiles	4	1	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,
Best "Rosemary" brand plain tiles	48	0	per 1,000 ,, ,,
Do. Ornamental Do.	50	0	,, ,, ,,
Hip tiles	4	0	per doz. ,, ,,
Valley tiles	3	8	,, ,, ,,

WOOD.

	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15	10	0	16	10	0
Deals: best 3 by 9	14	10	0	15	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds	0	10	0	,, ,, ,,		
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	9	10	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	9	10	0
Foreign Sawn Boards— 1 in. and 2½ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	,,		
Fir timber: Best middling Danzig or Memel (average specification	At per load of 50 ft. 4	10	0	5	0	0
Seconds	4	5	0	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	15	0	3	0	0
Pitch-pine timber (50 ft. average)	3	5	0	3	15	0
JOINERS' WOOD.	At per standard.					
White Sea: First yellow deals, 3 in. by 11 in.	23	0	0	24	0	0
3 in. by 9 in.	21	0	0	22	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	10	0
Second yellow deals, 3 in. by 11 in.	18	10	0	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	15	10	0	16	10	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	12	10	0

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £	s.	d.	£	s.	d.
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.	18	0	0	19	10	0
Battens	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.	14	10	0	16	0	0
Battens	11	0	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	10	0	14	0	0
Do. 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	0	0	11	0	0
White Sea and Petersburg:— First white deals, 3 in. by 11 in.	14	10	0	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Second white deals 3 in. by 11 in.	13	10	0	14	10	0
,, ,, ,, 3 in. by 9 in.	12	10	0	13	10	0
,, ,, ,, battens	9	10	0	10	10	0
Pitch-pine: deals	16	0	0	18	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	33	0	0	upwards.		
Oddments	22	0	0	24	0	0
Seconds, regular sizes	24	10	0	26	10	0
Yellow Pine Oddments	20	0	0	22	0	0
Kauri Pine—Planks, per ft. cube	0	3	6	0	4	6
Danzig and Stettin Oak Logs— Large, per ft. cube	0	2	6	0	3	6
Small ,, ,,	0	2	3	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	7	0	0	8
¾ in. do. do.	0	0	6½	-	-	-
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0	0	9	0	0	11
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	0
Dry Walnut, American, per ft. sup. as inch	0	0	10	0	1	0
Teak, per load	17	0	0	21	0	0
American Whitewood Planks— Per ft. cube	0	4	0	-	-	-
Prepared Flooring—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	1	6
1 in. by 7 in. white, planed and shot	0	11	6	0	13	6
1 in. by 7 in. white, planed and matched	0	12	0	0	14	0
1¼ in. by 7 in. white, planed and matched	0	14	6	0	16	6
¾ in. by 7 inch yellow matched and beaded or V-jointed boards	0	11	0	0	13	6
1 in. by 7 in. do. do. do.	0	14	0	0	18	0
¾ in. by 7 in. white do. do.	0	10	0	0	11	6
1 in. by 7 in. do. do. do.	0	11	6	0	13	6

6-in. at 6d. to 9d. per square less than 7-in.

JOISTS, GIRDERS, &c.

	In London, or delivered. Railway Vans, per ton. £	s.	d.	£	s.	d.
Rolled Steel Joists, ordinary sections	6	5	0	7	5	0
Compound Girders ,, ,,	8	2	6	9	5	0
Angles, Tees and Channels, ordinary sections	7	17	6	8	17	6
Flitch Plates	8	5	0	8	15	0
Cast Iron Columns and Stanchions, including ordinary patterns	7	2	6	8	3	6

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
IRON— Common Bars	7	10	0	8	0	0
Staffordshire Crown Bars, good merchant quality	8	0	0	8	10	0
Staffordshire "Marked Bars"	10	10	0	-	-	-
Mild Steel Bars	8	15	0	9	5	0
Hoop Iron, basis price	9	0	0	9	5	0
,, ,, galvanised	16	0	0	-	-	-
("And upwards, according to size and gauge.)						
Sheet Iron, Black.— Ordinary sizes to 20 g.	9	15	0	-	-	-
,, ,, to 24 g.	10	15	0	-	-	-
,, ,, to 26 g.	12	5	0	-	-	-
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes 6 ft. by 2 ft. to 3 ft. to 20 g.	12	15	0	-	-	-
,, ,, 22 g. and 24 g.	13	5	0	-	-	-
,, ,, 26 g.	14	5	0	-	-	-
Sheet Iron, Galvanised, flat, best quality:— Ordinary sizes to 20 g.	16	0	0	-	-	-
,, ,, 22 g. and 24 g.	16	10	0	-	-	-
,, ,, 26 g.	18	0	0	-	-	-
Galvanised Corrugated Sheets:— Ordinary sizes, 6 ft. to 8 ft. 20 g.	12	15	0	-	-	-
,, ,, 22 g. and 24 g.	13	5	0	-	-	-
,, ,, 26 g.	14	0	0	-	-	-

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	15	0	-	-	-
,, ,, 22 g. and 24 g.	12	11	0	-	-	-
,, ,, 26 g.	14	0	0	-	-	-
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	9	5	0	9	15	0

LEAD, &c.

	Per ton, in London. £	s.	d.	£	s.	d.
LEAD—Sheet, English, 3 lbs. & up.	14	7	6	-	-	-
Pipe in coils	14	17	6	-	-	-
Soil pipe	17	7	6	-	-	-
Compo Pipe	17	7	6	-	-	-
ZINC—Sheet— Vieille Montagne ton	27	5	0	-	-	-
Silesian	27	0	0	-	-	-
COPPER— Strong Sheet per lb.	0	0	10½	-	-	-
Thin ,,	0	0	11½	-	-	-
Copper nails ,,	0	0	11	-	-	-
BRASS— Strong Sheet ,,	0	0	10	-	-	-
Thin ,,	0	0	11	-	-	-
TIN—English Ingots ,,	0	1	5	-	-	-
SOLDER—Plumbers' ,,	0	0	6½	-	-	-
Tinmen's ,,	0	0	8½	-	-	-
Blowpipe ,,	0	0	9½	-	-	-

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft. delivered.
,, fourths	2¾d. ,, ,,
21 oz. thirds	3¼d. ,, ,,
,, fourths	2½d. ,, ,,
26 oz. thirds	4d. ,, ,,
,, fourths	3¼d. ,, ,,
32 oz. thirds	5d. ,, ,,
,, fourths	4¼d. ,, ,,
Fluted sheet, 15 oz.	3d. ,, ,,
,, 21 oz.	4d. ,, ,,
½ Hartley's Rolled Plate	1¾d. ,, ,,
⅜ ,, ,, ,,	2d. ,, ,,
¼ ,, ,, ,,	2¼d. ,, ,,

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes or barrels	per gallon	0	2	2
,, ,, ,, in drums	,,	0	2	6
Boiled ,, ,, in pipes or barrels	,,	0	2	5
,, ,, ,, in drums	,,	0	2	9
Turpentine, in barrels	,,	0	3	6
,, in drums	,,	0	3	8
Genuine Ground English White Lead	per ton	20	10	0
Red Lead, Dry	,,	20	0	0
Best Linseed Oil Putty	per cwt.	0	2	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon.		
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for Seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

TO CORRESPONDENTS.

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ATTERCLIFFE (Sheffield).—For rebuilding the Fox House Hotel, Shirland-lane and Ardmore-street. Attercliffe, Sheffield, for Messrs. the Directors of Thos. Berry & Co., Ltd. Messrs. Hall & Fenton, architects and surveyors, 14, St. James-row, Sheffield. Quantities by the architects:—

W. & A. Forsdyke	£1,750 0	Martin & Hughes	£1,539 0
C. H. Gillam	1,725 0	M. Hancock	1,525 0
Mastin & Son	1,635 0	H. Watkinson	1,513 0
Enos Moore	1,605 0	J. Masson	1,511 10
T. Margerrison	1,585 0	Hy. White	1,500 7
J. H. Lilleker	1,573 0	J. W. Dickens, 106, Clarence-st.*	1,500 0
A. Bradbury	1,551 10		

BRIDLINGTON.—For the erection of an engine-room, &c. (Contract No. VIII.), for the Corporation. Mr. E. B. Matthews, C.E., Town Hall, Bridlington:—

O. Atkinson	£8,553 0 0	Sampson & Sidall	£5,680 0 0
Jarem & Sons	6,775 15 0	J. Sawdon	5,398 0 0
J. Gould, Ltd.	6,467 13 1	J. H. Hudson	5,310 0 0
Good & Sons, Ltd.	6,418 8 8	Storr & Sons, Bridlington*	5,238 0 0
A. A. Booth	5,893 6 2	Sprakes & Son	5,100 0 0
R. Musk	5,792 10 5		

COCKERTON.—For the erection of sixteen houses for Mr. A. Hunt. Mr. W. H. Bourne, architect, Darlington:—

Hodgson & Sons	£4,644 12 9	Blackett & Son	£4,014 0 0
W. A. Cowan	4,527 0 4	Bovd & Sons	3,936 19 10
J. W. & M. Mackenzie	4,270 0 0	J. & J. Airey, Darlington†	3,840 0 0
F. Shepherd	4,116 19 0		

† Accepted provisionally, subject to modification.

CROYDON.—For proposed house to be erected in St. Peter's-road, Croydon. Mr. Frank Windsor, architect, 1, High-street, Croydon:—

J. R. Box	£1,115	E. J. Saunders	£873
J. Horrocks	975	D. Waller*	810

MANSFIELD.—For the erection of schools for the Pleasley School Board. Mr. J. Perkin, architect, Main-street, Shirebrook, near Mansfield:—

A. Eastwood	£4,489 14	R. Peck	£4,000 0
J. Greenwood	4,466 0	A. F. Houfton, Mansfield*	3,992 0
Vallance & Blythe	4,395 0	W. Thomasson	3,973 0
J. H. Reaville	4,370 0	A. B. Clark	3,734 0
F. H. Moore	4,225 13		
Lund & Swann	4,165 0		

REDHILL.—For the erection of dwelling-house on Redstone Park, Redhill, for Mr. J. T. Grellier. Mr. A. Waring Venner, architect, Redhill:—

Elsey & Sons	£1,360 0	J. White	£1,179 10
Chas. Parsons	1,320 0	R. Wallace	1,178 0
Ed. Worssell	1,225 0	W. Wickman, Reigate‡	1,135 0
J. J. Pink	1,191 0		

‡ Amended and accepted at £1,100.

REDHILL.—For the erection of a dwelling-house on Redstone Park, Redhill, for Miss L. Brown. Mr. A. Waring Venner, architect, Redhill:—

Buckland & Waters	£1,486	W m. Wickman, Reigate*	£1,319
E. Worssell	1,450		

REDHILL.—For the erection of dwelling-house on Redstone Hill, Redhill, for Mr. W. H. Fowler. Mr. A. Waring Venner, architect, Redhill:—

A. B. Wiles	£1,425	J. J. Pink	£1,319
Buckland & Waters	1,350	R. Wallace, Mers-tham*	1,178
A. B. Amos	1,345		

REIGATE.—For the erection of dwelling-house on High Trees Park, Reigate, for Mr. Richard Adams. Mr. A. Waring Venner, architect, Redhill:—

Nightingale & Sons	£2,030	E. Worssell	£1,985
Elsey & Sons	1,995	King & Son, Reigate‡	1,910

‡ Amended and accepted at £1,950.

SLOUGH.—For two new houses and shops at Slough (High-street), for Messrs. Nevile, Reid, & Co. Mr. J. G. Carey, architect, Windsor:—

Goddard & Son	£2,860	Hollis & Son	£2,678
E. K. Willett	2,798	John Deverill	2,584
A. H. Reavell	2,774	H. Bowyer	2,528
Burfoot & Son	2,700		

WINDSOR.—For shop in Thames-avenue, Windsor, for Messrs. Nevile, Reid, & Co. Mr. J. G. Carey, architect, Windsor:—

Goddard & Son	£330 0 0	Burfoot & Son	£289 13 6

WINDSOR.—For second shop in Thames-avenue, Windsor, for Messrs. Nevile, Reid, & Co. Mr. J. G. Carey, architect, Windsor:—

Goddard & Son	£318

WINDSOR.—For house and shop, No. 28, Thames-street, Windsor, for Mr. A. H. Thornton. Mr. J. G. Carey, architect, Windsor:—

A. H. Reavell	£1,493 0	E. K. Willett	£1,360 0
H. D. Bowyer	1,479 0	Burfoot & Son	1,332 10
Goddard & Son	1,397 0	Hollis & Sons*	1,248 0

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